

AAD F029
Semiannual Meeting of the
DERMATOLOGY TEACHERS EXCHANGE GROUP
1:00 pm - 3:00 pm Friday March 4, 2016
Room 203, Washington DC

To accommodate all submissions and to allow time for an EXCHANGE, presenters please follow assigned times and craft length of presentations accordingly because time limits will be strictly enforced. Many thanks.

	Welcome	Tammie Ferringer, MD Geisinger Medical Center, Danville, PA
1-1:08 pm 8 min	To Err is Human, to Prevent Divine: The Impact of a Surgical Skill and Safety Orientation for Dermatology Residents of All Levels	Nahid Vidal, MD – University of Iowa Hospitals & Clinics
1:08-1:16 pm 8 min	The Knock: Opening the Door to Improved Hand Hygiene in Dermatology Outpatient Clinics	Allison Cruse - University of Mississippi Medical School
1:16-1:24 pm 8 min	EXCHANGE	
1:24-1:31 pm 7 min	Creation of Novel Phone App to Replace Resident Biopsy Logs	Emily C. McKenzie, MD - University of Louisville, DOM, Division of Dermatology
1:31-1:38 pm 7 min	Brown Dermatology Canvas Site	Annie Wang, MD, Chief Resident John Kawaoka, MD, Assistant Professor of Dermatology, Residency Program Director, Warren Alpert Medical School of Brown University, Rhode Island
1:38-1:45 pm 7 min	EXCHANGE	
1:45-1:50 pm 5 min	Mohs Surgical Reconstruction Educational Activity	Julie A. Croley, BS - UTMB, Galveston, Texas
1:50-1:55pm 5 min	Skin Simulators for Dermatological Procedures – An anecdotal experience	Jacob Levitt, MD Ethan T. Routt, MD Icahn School of Medicine at Mount Sinai
1:55-1:58 pm 3 min	EXCHANGE	
1:58-2:03 pm 5 min	Skin Care and Cosmeceuticals: Attitudes and Trends Among Trainees and Educators	Jill Feetham MD - UT Southwestern Medical Center, Dermatology Resident, PGY-4
2:03-2:08 pm 5 min	Progressive instruction template over the span of a dermatology residency	Patrick K. Lee, MD Clinical Professor, Director of Dermatologic Surgery, UC Irvine Department of Dermatology
2:08-2:11 pm 3 min	EXCHANGE	
2:11-2:16 pm 5 min	DERM: Dermatologic Education Reinforced Mnemonically	Jaclyn Smith, research fellow, Department of Dermatology, Wake Forest School of Medicine, Medical

		Center Boulevard, Winston-Salem, NC
2:16-2:21 pm 5 min	The use of an imagery mnemonic to teach the porphyrin biochemical pathway.	Ethan T. Routt, MD. Mount Sinai St. Lukes – Roosevelt, Internal Medicine Dept. (PGY1, preliminary). Dept. of Dermatology, Icahn School of Medicine at Mount Sinai (Categorical for PGY2-4)
2:21-2:24 pm 3 min	EXCHANGE	
2:24-2:29 pm 5 min	Effect of a Dermatology Curriculum in an Internal Medicine Residency Program	Steven T Chen, MD MPH Instructor of Dermatology, Harvard Medical School, Director of Medical Education, Assistant in Dermatology, Massachusetts General Hospital
2:29-2:34 pm 5 min	Integration of Dermatology-Focused Physical Diagnosis Rounds and Large Group Case-Based Active Learning within the Internal Medicine Core Clerkship	Heather Wickless, MD, MPH Assistant Professor of Dermatology, UT Southwestern Medical Center
2:34-2:39 pm 5 min	Teaching the Simple Suture to Medical Students for Long-term Retention of Skill	Ethan T. Routt, MD. Mount Sinai St. Lukes – Roosevelt, Internal Medicine Dept. (PGY1, preliminary). Dept. of Dermatology, Icahn School of Medicine at Mount Sinai (Categorical for PGY2-4)
2:39-2:42 pm 3 min	EXCHANGE	
2:42-2:47 pm 5 min	Assessment of a blended dermatology teaching session for preclinical medical students	Matthew Dizon, B.Sc. University of California, San Francisco School of Medicine
2:47-2:52 pm 5 min	Lessons learned from engaged large-group learning sessions	Allison Larson, MD Assistant Professor, Boston University Medical Center
2:52-2:57 pm 5 min	Anatomy laboratory as an opportunity to educate about skin lesions	Allison Larson, MD Assistant Professor, Boston University Medical Center
2:57-3:00 3 min	EXCHANGE	
	Adjourn	

To Err is Human, to Prevent Divine: The Impact of a Surgical Skill and Safety Orientation for Dermatology Residents of All Levels

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More than 385,000 sharps stick injuries occur every year among hospital employees, but there is a paucity of research on resident behavior and risk of sharps injuries¹. Within dermatology, 45.2% residents surveyed failed to report a sharps injury and 80% did not always perform a “time out.”³ Potential barriers to reporting include time pressure, “minor” injuries with low suspicion for disease, inconvenience, stigma, or fear⁴.

We created a didactic and hands-on simulation-based safety and surgical technique orientation for all residents. The full day curriculum provided interactive instruction on safety topics and simulation-based practice of basic procedural skills (biopsy, ED&C, liquid nitrogen, intralesional injection, excision) within dermatology resident teams. Demonstration and practice of full skin exams with simulated procedures were performed, so residents became both familiar with the clinic flow and procedures.

Pre-and post-surveys were administered to measure safety knowledge, identify habits/barriers to reporting sharps injuries, and assess perceived utility.

All dermatology residents responded to the surveys. Pre-orientation survey showed that 40% of residents reported no prior formal training on sharps injury prevention or protocol; 40% reported that they would not report a sharps/sticks injury (SSI) despite the fact that 100% of residents thought they would likely incur a sharps stick injury in their career. Post- survey demonstrated an increased likelihood to report an SSI (not statistically significant), and a trend of increased confidence among residents in performing various procedures, communicating during procedures, handling sharps, and directing a surgical assistant..

This safety-focused simulated education was incorporated to address the gap in dermatology regarding patient and provider safety. All the residents felt that the curriculum was needed to prevent injuries, educate trainees on safety protocols, and develop procedural skills.

1. Institute of Medicine of the National Academies. To err is human: building a safer health system. <http://www.iom.edu/Reports/1999/To-err-is-Human-Building-A-Safer-Health-System.aspx>. Published November 1999. Accessed January 10, 2016.

2. Marnejon T, Gemmel David, Mulhern K. Patterns of Needlestick and Sharps. JAMA Intern Med. 12/7/2015. doi:10.1001/jamainternmed.2015.6828

3. Swary JH, Stratman EJ. Practice gaps in patient safety among dermatology residents and their teachers: a survey study of dermatology residents. JAMA Dermatol. 2014 Jul; 150(7): 738-42. Doi: 10.1001/jamadermatol.2013.7541

4. Goulart JM, Oliveria SA, Levitt J. Safety during dermatologic procedures and surgeries: a survey of resident injuries and prevention strategies. J Am Acad Dermatol. 2011;65(3):648-650.

5. Accreditation Council for Graduate Medical Education. ACGME program requirements for graduate medical education in dermatology.

http://www.acgme.org/acgmeweb/Portals/O/PFAssets/ProgramRequirements/080dermatology_07012007.pdf. Accessed January 10, 2016.

6. Makary MA, AL-attar A, Holzmueller CG, et al. Needlestick injuries among surgeons in training. N Engl J Med. 2007;356(26):2693-2699.

The Knock: Opening the Door to Improved Hand Hygiene in Dermatology Outpatient Clinics

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Hand hygiene is generally accepted to be a critical component of high reliability health care. Dermatology residents at the University of Mississippi Medical Center (UMMC) recognized that faculty members often failed to adhere to recommended hand hygiene protocols in outpatient clinic settings. A quasi-experimental study involving direct observation of hand hygiene behavior was designed to assess the extent of the problem, analyze outpatient facilities for technical barriers to proper hand hygiene, and institute a system to improve hand hygiene adherence by health care providers. This system was designed to be time-efficient, provide simple methods for monitoring and feedback, and be replicable to other clinic settings. Seven dermatology faculty members and 4 residents at UMMC participated in this study. Residents assigned to work with each faculty member during clinics surreptitiously recorded faculty adherence to hand hygiene for one full day during one week in May 2014 (1st observation period). Adherence was defined as using alcohol based hand rub (ABHR) or hand washing within 20 seconds of entering the examination room. Two weeks following the 1st observation, an educational intervention occurred in which a resident presented evidence supporting the role of hand hygiene in preventing infections and the UMMC data demonstrating unsatisfactory faculty adherence. At the same, a feedback intervention was implemented: faculty, residents, nurses, and medical students were instructed to make a single knock on a counter or wall if they witnessed any team member enter an exam room without using hand hygiene. This subtle reminder was intended to stimulate immediate hand sanitization without drawing undue attention to the non-adhering team member. Faculty members were made aware that they would be observed again at an unspecified time in the future and that the goal of the project was to achieve 100% use of hand hygiene when entering clinic rooms. After the initial education session and continuous feedback interventions, faculty were surreptitiously observed by a resident for a one full day during a one week period at 5 months and at 1 year. The percentage of hand hygiene adherence of faculty in the clinic during the first observation (n=69), second observation (n=101), and the third observation (n=94) was 55.1% (38 out of 69); 81.2% (82 out of 101); and 89.4% (84 out of 94), respectively. A chi-square analysis assuming independence of encounters demonstrated a significant difference in these proportions $\chi^2 (2, N=264) = 28.068, p < 0.0001$. The study design did not permit a determination of the relative importance of the educational intervention versus the “knock”. The continuous, real-time use of the “knock”, however, may be responsible for the long-term improvement in hand-hygiene adherence considering the fading benefits that accrue from educational interventions when utilized alone as opposed to a multimodal approach. We recommend that each clinic perform their own six sigma evaluation and strategic planning study to determine if they have a measurable hand hygiene problem, analyze which barriers may be responsible for the problem, and design a system to correct and sustain hand hygiene. The “knock” is one approach to feedback that has shown to be time efficient and replicable.

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Creation of Novel Phone App to Replace Resident Biopsy Logs

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Dermatology residents see patients at multiple sites with different electronic health records, which creates obstacles for the safe care of patients and potential HIPPA violations. Residents have traditionally carried “log books” to keep a record of patients with pending biopsy and laboratory results. Our challenge was to develop a HIPPA compliant electronic log that could effectively replace the traditional biopsy book.

Methods: We identified required information e.g. Patient’s Name, Medical Record Number or Social Security#, Date of Birth, Date of Biopsy or Test, Clinic Site, Type of Biopsy, Clinical Impression, Pathology and Further Treatment. We kept the data input as simple as possible to minimize time spent entering it by creating blank text fields, date spinners, or user-inputted lists (e.g. Clinic Site) and input of clinical photo(s). Radio buttons were created to display a checkmark on the home screen indicating completion of each encounter. A password to log in and backups were encrypted to ensure HIPAA compliance.

Results: After developing the App, we gave access to residents in our program. 3 of our 7 residents have completely transitioned away from a written biopsy book and were pleased to find that patients could be entered just as quickly in the app as in a book. The pictures have been helpful while reviewing biopsy slides as well as when trying to identify exact biopsy sites. Another benefit is the increase in efficiency when searching for a patient with the search field. The most common reasons cited for not using the App were a fear of not being “tech savvy” and the lack of an automated way to transfer information from a pre-existing written log.

Comment: The goal for any dermatologist, in residency or practice, is to ensure good care for their patients. This App provides an effective and secure method of recording biopsy results across different clinical sites and EMRs allowing for better care of our patients and protection of their information.

Brown Dermatology Canvas Site

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Every dermatology residency program has an incredible amount of information to disseminate. This includes schedules, reading assignments, rotation guides, how to guides, contact information, etc. To find what we need often means searching through drawers, pockets, or

endless emails. Our goal was to centralize the information and make it readily accessible from smartphones so it could be used in real time with the most updated information. In the age of millennial learners, such quick and easy access is always welcome. We learned about Canvas by Instructure, which is designed for education courses, but is also perfect for residency. It is offered through Brown University. It has not only a desktop site, but is also connected to an iPhone and Android compatible "App" to optimize its accessibility for smartphone use. The goal of this presentation is to show 1) what we did and how this set up can be used 2) the ease of using the program (no programming knowledge required), and 3) how other programs can use it even if their institution doesn't already have access. We have been able to centralize contact information (where clicking on a phone number automatically places the call!), our resident handbook (commonly used meds, work-up, systemic med monitoring info, etc.), clinic assignments, a calendar with call schedules, and links to rotation goals and the milestones document. It also has the ability to send group announcements via email or SMS txt! We plan to put useful or recent PowerPoint lectures on this site so that they can be reviewed by residents whenever they choose. Because it was partially designed for universities, there is also a way to do quizzes (with dissemination and collection of the quiz all through the program itself). Eventually, we would like to be able to use it to provide feedback and milestone progress to the residents so that they can review this regularly and easily.

Mohs Surgical Reconstruction Educational Activity

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Surgical reconstruction after Mohs surgery is in essence the art of filling holes. There are many guiding principles but few strict absolutes and often several reasonable solutions for the same defect. One must take into account patient factors such as medical comorbidities, willingness to undergo multiple procedures to achieve a superior cosmetic result or preference for a minimalist approach. Additional factors include local tissue mobility, respecting cosmetic subunits, preserving free margins, and camouflaging scars. Residents and fellows must learn to assimilate and apply the principles of reconstruction in addition to mastering a precise knowledge of local anatomy, soft tissue handling and suturing techniques. Understandably, many residents and fellows find planning and implementing surgical reconstructions to be a daunting task. Traditional teaching based on observation and didactic lectures are not effective in these circumstances. We designed an active, problem-based educational activity as part of our institution's Mohs micrographic surgery rotation with the goal of improving a resident's ability to plan surgical reconstructions for Mohs surgery patients. Dermatology and Plastic Surgery residents planned surgical repairs on preoperative pictures for patients that they would operate on during their Mohs rotation. The Mohs surgeon provided feedback on the resident's planned repairs during reconstruction planning on the day of the patient's surgery. The residents were given the option to design repairs on printed pictures or to use an iPad application described by DuPont et al. at the American College of Mohs Surgery meeting in May of 2015. Voluntary pre and post rotation surveys showed a trend toward improved surgical planning ability, but the results did not achieve statistical significance. The Mohs Surgical Educational Activity was well received by our residents and is a valuable addition to our institution's Mohs micrographic surgery rotation.

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Skin Simulators for Dermatological Procedures – An anecdotal experience

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Background: Dermatological procedures are technically demanding and often involve many steps. Developing proper technique on a safe substrate prior to practice on patients, an accepted practice across many surgical specialties, should reduce occupational exposure as well as improve patient outcome. A variety of skin simulators are available on which to practice procedures; however, choice of a suboptimal substitute compromises realism and productive practice.

Objective: Skin simulators for basic dermatological procedures are reviewed.

Methods: The authors' anecdotal experience with various skin simulators in the simulation lab for different procedures is shared.

Results: The following simulators are suggested: an unripe banana for elliptical excision, pork belly for undermining, pork belly for simple interrupted and buried suture, capped needle on a human shoulder for intramuscular injection, ripe tomato or hotdog with skin for intradermal injection, eggplant for shave biopsy, pork belly for punch biopsy, plastic tape over a dark surface for cryosurgery, and beef liver for electrosurgery. Flaps are best practiced with foam sandwiched between foam tape or artificial anatomical models created specifically for this purpose.

Conclusion: Although the utility of one simulator over another was not compared in a controlled study, we believe that efficient and realistic skin simulators are readily available for practice and should enhance the safety of the practitioner and improve outcomes of novices.

Discussion: The potential of a simulation-based curriculum as a new model for surgical education is receiving more acceptance and should be an attractive model for procedural dermatology education. We believe the majority of injuries experienced while learning can be prevented by the acquisition of refined skills on simulators in conjunction with video instruction followed by guided in-person feedback.

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Skin Care and Cosmeceuticals: Attitudes and Trends Among Trainees and Educators

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Background: Patients seen in a dermatology offices often seek skin care recommendations from their dermatologist. Studies show that among physicians, dermatologists are the most likely to recommend a non-prescription skin care product or cosmeceutical to their patients.

Objective: To determine how much education dermatology residents receive on skin care and cosmeceutical products, the source of education, and the attitude of trainees towards skin care and cosmeceuticals.

Methods: Cross sectional survey of dermatology residents, residency program directors, and dermatology chairs via an on-line survey administered June 2015 and August 2015, respectively. The survey link was distributed by program coordinators to the dermatology residents and through the Association of Professors of Dermatology database to the dermatology faculty.

Results: One hundred and four dermatology residents and fifty dermatology faculty members completed the survey. Among the dermatology residents, equal distribution was represented across the country and among their current year of training (PGY-2 31%, PGY-3 34% and PGY-4 34%). The ratio of female to male participants was 65% to 35%, respectively. Dermatology faculty also showed similar geographic distribution. The majority of residents and faculty report discussing skin care with approximately 25% of their patients (62% & 69%, respectively). Among the resident participants, 76.5% state they "Agree or Strongly Agree" that skin care and cosmeceutical education should be part of their education and the majority of residents (74.5%) report their education has been "Too Little or Non-existent" during residency. In contrast, only 40% of dermatology faculty reports that they "Agree or Strongly Agree" that cosmeceutical education should be apart of their residents' education ($p < 0.001$) and the majority of the faculty (60%) reports their resident education is "Just the Right Amount or Too Much" ($p < 0.001$).

Limitations: Results may be biased by modest response rate and not reflect the experience or attitudes of trainees and faculty as a whole.

Conclusions: Skin care and cosmeceutical recommendations are often discussed during an office visit with a dermatologist. Dermatology residents feel that education on these products are should be apart of their residency training and desire to receive more information on this subject matter to better serve and educate their patients.

Progressive instruction template over the span of a dermatology residency

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Teaching dermatology residents for the three year period of their residency gives a unique opportunity to have a graduated increase in independent thinking and responsibility for both diagnoses and management of patients' conditions. For the first-year resident, the attending may expect the resident to adequately describe the condition in terms of primary and secondary

lesions, offer a limited differential diagnosis, and then a treatment plan, if prepared to offer one. The attending should amend/critique the physical exam, expand the differential diagnosis if indicated, and also expand if not completely override the treatment plan. The sole decision-making for the patient's condition and discharge plan rests with the attending faculty. For the second-year resident, the attending may expect a thorough accurate description of the physical exam, an expanded differential diagnosis, and at least one thorough treatment plan, if not more. The attending should amend the physical exam but necessity should be minimal. However, the differential diagnosis and treatment plan should be expanded and alternatives offered, if appropriate. The sole decision-making for the patient's condition and discharge plan again rests with the attending faculty. For the third-year, or senior, resident, the attending may expect a thorough accurate description of the physical exam, a comprehensive differential diagnosis, and a comprehensive treatment plan, if not multiple plans. The attending should not need to amend the physical exam, and may expand the differential diagnosis and treatment plans, if indicated. However, the medical decision-making and discharge plan should be a joint effort between the senior resident and attending faculty: as long as the senior resident does not deviate from the agreed-upon treatment choices decided upon with the attending, the resident may choose which treatment course the patient will receive, and determine appropriate follow-up. This intentional method of increasing responsibility and decision-making for the residents through the breadth of their residency nurtures the maturity and conviction necessary for a dermatology resident to evolve into a practicing dermatologist. Moreover, this method also establishes an instructing template for the resident to follow, should the resident become a clinician educator/attending faculty at the conclusion of his/her residency.

DERM: Dermatologic Education Reinforced Mnemonically

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Introduction: With dramatic increases in our understanding of dermatology, there are more facts/minutiae to remember than ever before. Mnemonics have been popularly used to aid dermatology learning, but mnemonics themselves may be difficult to remember.

Purpose: To develop a more useful set of mnemonics based on guidelines chosen to optimize ease of learning.

Methods: We developed mnemonics based on four principles: the word or words encompassed by the mnemonic should be related to the condition to which the facts are covering; smaller specific details should be avoided; explanations should not introduce new information; and any formatting should highlight connections and be simple.

Results: For example, the acronym "CA²B³S" used to remember the components of the SCORTEN scale uses a word, CABS, that is not related to TEN and superscripts that are not natural. Rearranging the letters into the acronym "SCAB" directly relates to the skin condition in TEN, and the position of the letters (from S=0 to B=3) provides a means of making clear that there are 2 A (area, age) and 3 B (BUN, beats per minute, & bicarbonate) components.

Another example, "Minnows swim in the marina" is a phonetic mnemonic used to learn that Minocycline treats *M. marinum*, and a sidenote mentions Clarithromycin can be used too. Bolding the phonetically similar words and adding the sidenote information into the mnemonic gives

“Minnows swim in the clear marina.” Now, the mnemonic highlights that **Min**ocycline and **Clar**ithromycin treat **M. marinum** and new information is no longer introduced in the sidenote.

Discussion: Dermatologic mnemonics built to be more succinct and related to a condition may help facilitate learning and recall of key facts in dermatology.

The use of an imagery mnemonic to teach the porphyrin biochemical pathway.

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We designed an imagery mnemonic to help medical students and residents learn the porphyrin pathway and associated diseases. Fourth year medical students at the Icahn School of Medicine at Mount Sinai in the spring of 2014 participated. One group (n=11) received the porphyrin pathway in a lecture explaining a mnemonic, whereas a second group (n=11) was simply taught the steps of the pathway. A pre-intervention assessment before the lectures was given to assess baseline differences in knowledge of the porphyrin pathway between the groups. Immediately following the lecture, 1 week after the lecture, and 3 weeks after the lecture, the students were given quizzes to assess their knowledge. Students were aware of the week 1 quiz and were asked not to study for it. The week 3 quiz was a surprise. There were no statistically significant differences in knowledge of the pathway at baseline ($p=0.45$), at the immediate post-intervention ($p=0.22$), or one week post-intervention ($p=0.40$). Three weeks after the lecture, students in the mnemonic group scored 20% higher than controls ($p=0.02$). Students who had learned the mnemonic demonstrated better long-term retention of information than students learning by the control method. This mnemonic minimizes study time while improving long-term retention.

Effect of a Dermatology Curriculum in an Internal Medicine Residency Program

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Background: A recent study showed over 80 percent of internal medicine residents reported being uncomfortable or very uncomfortable with dermatologic issues. Formalized teaching in dermatology in medicine residency may be prudent.

Objective: To study the effect of a dermatology curriculum on knowledge and attitudes toward dermatology in an internal medicine residency program at an academic medical center.

Design: Pre-post study design

Methods: Medicine housestaff were invited to fill out a pre-intervention survey. Dermatology lectures were delivered by combined medicine/dermatology senior residents as well as

dermatology faculty. Housestaff were then invited to fill out a voluntary post-intervention survey. Surveys contained questions on self-reported attitudes and knowledge of dermatology and a 10-point objective knowledge assessment.

Results: 165 housestaff were invited to participate. 61 residents filled out the pre-intervention survey; 46 filled out the post-intervention survey. In multivariate analysis, the curriculum improved self-reported knowledge in dermatologic emergencies, skin infections, autoimmune diseases, and drug toxicities ($p < 0.05$). The curriculum decreased self-reported interest in learning about dermatologic emergencies, skin infections, common rashes, and drug toxicities ($p < 0.05$). There was increased comfort toward evaluating a skin lesion ($p < 0.05$), but not a rash. The curriculum improved scores on a 10-point examination from 4.88 to 6.33 ($p < 0.05$).

Limitations: The pre-post study is inferior to a randomized trial. We are unable to separate the effect of the curriculum from the secular trend of residency experiences and education. There was a low response rate. Finally, the objective knowledge assessment was created by an unblinded study coordinator.

Conclusions: The curriculum variably improved self-reported knowledge and decreased self-reported interest in a variety of topics. The curriculum improved scores on an objective knowledge assessment.

Integration of Dermatology-Focused Physical Diagnosis Rounds and Large Group Case-Based Active Learning within the Internal Medicine Core Clerkship

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Background: Over half of dermatologic conditions are seen by non-dermatologists, yet medical students receive little dermatology education. Medical students in the clinical years of training at our institution felt insecure in their physical diagnosis skills for dermatological conditions.

Objective: Implement dermatology-focused curricula within the Internal Medicine (IM) Core Clerkship.

Methods: Two dermatology-focused sessions were integrated into the IM Core Clerkship. A faculty dermatologist leads students on a dermatology-focused physical diagnosis "Skin Rounds" where patients are seen at the bedside and students practice describing skin lesions and forming a differential diagnosis. Students also participate in a case-based active learning session. A faculty dermatologist selects images of common dermatologic conditions which students describe utilizing appropriate terminology and offer a differential diagnosis. The impact of these sessions was assessed through survey-based student feedback and by comparing the results from the IM Shelf Exam before and after intervention.

Results: The survey had a 32% response rate ($n=72$). 98% of students felt that skin rounds were effective and useful. 92% of students reported they felt more confident describing skin lesions afterwards. 88% of students reported that the case-based learning session improved their ability

to work in a team. Performance on the dermatologic questions of the IM Shelf Exam was analyzed. While not statistically significant at $p < 0.05$, students improved from an average of 77% correct responses before intervention to 79% afterwards ($p = 0.60$).

Conclusions: Our case-based and bedside teaching interventions were met with high satisfaction from medical students and increased their confidence in describing skin lesions. This intervention can serve as a model for implementation of curricula within the IM clerkship to address inadequacies at other institutions.

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Teaching the Simple Suture to Medical Students for Long-term Retention of Skill

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Instructional methods for the simple suture technique vary widely and are seldom based on educational research. Published data indicate that video primers and structured teaching and evaluation decrease learning time and improve skill acquisition. To determine the amount of practice needed to attain proficiency and to identify the optimal teaching schedule for retention of skill, we enrolled first and second-year medical students at the Icahn School of Medicine at Mount Sinai with little to no suturing experience.

They were randomly divided into 2 groups of 12, with 1 group being taught on day 1 and tested for proficiency on day 30 and the other being taught on day 1 and tested for proficiency on days 10, 20, and 30. Students were evaluated using the objective structured assessment of technical skills method and a checklist. Those initially not proficient on a given day were immediately prompted to practice and retest. This cycle continued until proficiency was achieved.

The mean number of practice sutures required to achieve proficiency at the initial training was 41 (SD:15). Students in the control group had a 0% pass rate at the 30-day initial proficiency test, while students in the experimental group had a 91.7% pass rate at day 30 ($P < .001$). All students ultimately achieved proficiency with no significant differences in instructional time, cumulative number of sutures, or objective structured assessment of technical skills scores at proficiency between groups.

We found that single instructional sessions may not be sufficient to maintain simple suture proficiency over 30 days. We propose the use of preparatory instructional videos, followed by instructor demonstration to introduce the technique. Independent practice with intermittent evaluation and critique allows for skill acquisition and time efficiency at the initial training. Students should view instructional videos and practice at least 10 repetitions every 10 days to maintain their skill.

Assessment of a blended dermatology teaching session for preclinical medical students

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Background: Dermatology is considered an overlooked aspect in medical school curricula, but opportunities to teach students about the skin in the preclinical years are increasingly rare. Educators in dermatology must consider methods that are both effective and efficient, such as blended learning formats that can improve learning over the common lecture and textbook format.

Objective: To determine the acceptability of a blended learning format in dermatology.

Methods: A traditional lecture on primary skin lesions for first-year medical students was revised into a 20-minute blended learning session. Preparation materials included a short text and online video lecture. In person, dermatology preceptors guided students through a tablet-based module, which prompted them to describe images of lesions using appropriate morphology terms, and supervised skin exams of peer volunteers. At the end of the session, students (n=149) were surveyed regarding the overall effectiveness of the session and helpfulness of peer examination, dermatology preceptors, and preparation materials. Responses were measured using a 5-point Likert Scale ranging from "Strongly Disagree" to "Strongly Agree."

Results: The response rate was 67%. The majority of students found the session to be an effective learning experience (96%) and also found peer exams (96%), dermatology preceptors (92%), and preparation materials (94%) to enhance their learning. Mean scores were similar to those of highly-rated musculoskeletal group learning sessions in the same physical exam course.

Limitations: No control group was used to compare the efficacy of the blended teaching format to the traditional format. Whether students completed all preparation materials prior to the session was not determined.

Conclusion: First-year medical students found a 20-minute blended learning dermatology teaching session to be highly effective and acceptable. Such a format represents a promising alternative to traditional approaches.

Lessons learned from engaged large-group learning sessions

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In recent years there has been increasing emphasis on active and engaged learning in medical education. However, it can be challenging to coordinate leaders for numerous simultaneous small-group discussion sessions as in a traditional flipped classroom approach. Over a two-year period, we transitioned our week-long second year medical student course to include 53% traditional lecture time with the remaining 47% of the time spent mainly in large-group interactive sessions as well as a few at-home modules.

Overall course satisfaction improved from 94% to 99% of students ranking the course as good or excellent. We also saw an increase in the percent of students who rated lecture delivery as engaging (88% to 96%). The percent of students who agreed that the module provided opportunities for collaboration among students rose from 50% to 91%.

A survey was sent to the medical students after our rotation asking them to provide details on their experiences with large-group learning in the first 6 months of their curriculum. We learned many things from this survey about student preferences including a need to be sensitive to the time required for at-home learning modules and an overall preference for a video format in these modules. Regarding large-group engaged learning, students preferred clicker-based audience response questions or a problem set they could work on alone or with 1-2 other students rather than a case-based method with larger breakout groups (15 students) in an auditorium setting.

Anatomy laboratory as an opportunity to educate about skin lesions

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The Liaison Committee on Medical Education has challenged medical schools to design curricula that are “coordinated and integrated within and across academic periods of study”. Our institution is working to develop creative connections between the foundational sciences and clinical medicine. Most medical schools offer no exposure to clinical dermatology in the first-year curriculum, with limited exceptions. We took advantage of the first day of gross anatomy laboratory to teach about the skin.

180 students attended an hour-long session during which skin lesions were examined and cadaver hands and faces were wrapped. Our aim was to teach about common skin findings and their potential relationship to external exposures or internal disease. One attending and 3 resident dermatologists circulated between 24 tables of students. Approximately 5 minutes was spent per table discussing the skin findings of each group’s cadaver. Students were prompted to examine the skin for lesions and speculate about possible external exposures in the case of dermatoheliosis and internal manifestations in the case of scars. Lesions found included one likely non-melanoma skin cancer, several actinic keratoses, many seborrheic keratoses, and one well-healed skin graft. Impressions from intravenous lines and endotracheal tubes left in place during fixation were also discussed as were embalming artifacts and sequelae of decomposition.

The day after the teaching session, students were given the option to fill out an online survey. This survey was approved by the Boston University Institutional Review Board. 100 students completed the survey. Results showed that 59% felt they developed a better understanding of skin lesions and 60% felt they developed a basic framework for how skin examinations can give clues to external exposures. 32% of students felt they gained a better understanding of how skin findings could correlate with underlying systemic disease and 62% felt that the skin examination helped them feel more connected with their cadaver. It should be noted that 10% of students stated a dermatologist did not stop by their table. These students may have left before we approached their table or, alternatively, they may not have heard us introduce

ourselves. In a comment section, some students told us they would like to learn about skin findings beyond what they saw in their own cadavers.

Some challenges that we encountered included a difference in appearance between skin lesions in living humans and cadavers, such as a lack of pinkness in lesions like actinic keratoses. Our dermatology team also needed to gain familiarity with embalming artifacts and decomposition-related skin changes prior to the session as many students asked us about skin slippage, desiccation, and mottling. One week prior to our session with the students, we examined bodies with the anatomy lab director to gain familiarity with these changes.

Overall, this brief teaching intervention was successful in introducing basic dermatologic diagnoses and concepts to first-year medical students. In subsequent years we plan to add in a large-group session prior to the laboratory time to teach the students more about the variety of cadaver skin findings.