



Body System: Integumentary			
Session Topic: Nail Disorders/Abnormalities			
Educational Format		Faculty Expertise Required	
REQUIRED	Interactive Lecture	Expertise in the field of study. Experience teaching in the field of study is desired. Preferred experience with audience response systems (ARS). Utilizing polling questions and engaging the learners in Q&A during the final 15 minutes of the session are required.	
OPTIONAL	Problem-Based Learning (PBL)	Expertise teaching highly interactive, small group learning environments. Case-based, with experience developing and teaching case scenarios for simulation labs preferred. Other workshop-oriented designs may be accommodated. A typical PBL room is set for 50-100 participants, with 7-8 each per round table. <u>Please describe your interest and plan for teaching a PBL on your proposal form.</u>	
Professional Practice Gap		Learning Objective(s) that will close the gap and meet the need	Outcome Being Measured
<ul style="list-style-type: none"> Knowledge gaps related to counseling patients on proper nail care to avoid infections or the development of such conditions as ingrown toenails, increased brittleness, transverse grooves, onychomycosis and subungual keratosis (all of which may occur with pregnancy). There are new treatments available for onychomycosis. Knowledge gaps related to screening for nail disorders during routine physical exams. Knowledge gaps in diagnosing nail changes for signs of systemic illnesses, especially for signs of melanoma. Knowledge gaps about evidence-based treatment strategies 		<ol style="list-style-type: none"> Assess normal nail anatomy and identify common disorders. Describe the appearance and clinical significance of the most common nail disorders. Evaluate treatment options and indications for nail bed surgery and repair. Counsel patients on proper nail care to avoid infections or the development of nail abnormalities. 	Learners will submit written commitment to change statements on the session evaluation, indicating how they plan to implement presented practice recommendations.
ACGME Core Competencies Addressed (select all that apply)			
X	Medical Knowledge	X	Patient Care
X	Interpersonal and Communication Skills		Practice-Based Learning and Improvement
	Professionalism		Systems-Based Practice
Faculty Instructional Goals			



Faculty play a vital role in assisting the AAFP to achieve its mission by providing high-quality, innovative education for physicians, residents and medical students that will encompass the art, science, evidence and socio-economics of family medicine and to support the pursuit of lifelong learning. By achieving the instructional goals provided, faculty will facilitate the application of new knowledge and skills gained by learners to practice, so that they may optimize care provided to their patients.

- Provide up to 3 evidence-based recommended practice changes that can be immediately implemented, at the conclusion of the session; including SORT taxonomy & reference citations
- Facilitate learner engagement during the session
- Address related practice barriers to foster optimal patient management
- Provide recommended journal resources and tools, during the session, from the American Family Physician (AFP), Family Practice Management (FPM), and Familydoctor.org patient resources; those listed in the References section below are a good place to start
 - Visit <http://www.aafp.org/journals> for additional resources
 - Visit <http://familydoctor.org> for patient education and resources
- Provide recommendations for assessing normal nail anatomy and identify common disorders.
- Provide recommendations and strategies to help physician-learners identify the appearance and clinical significance of the most common nail disorders.
- Provide recommendations for evidence-based treatment options and indications for nail bed surgery and repair, including a comparison between current and new treatment options.

Needs Assessment

As family physicians treat patients of all ages – from young children to the elderly – it is important to equip them with the tools to identify, diagnose and develop treatment plans for the diverse populations they see in practice. Skin problems and diseases have become a growing reason for which patients seek treatment (35 million patient visits to family physicians were for skin-related problems in 2009¹) and as such, family physicians should be well equipped to handle some of the most common conditions, which may include everything from acne and eczema to skin cancer and aging. Membership data from recent surveys conducted by the American Academy of Family Physicians (AAFP) indicates that over 73% of family physicians provide skin procedures (e.g. biopsies), and an additional 8.6% perform cosmetic procedures in their clinical practice.² When asked what procedures members would most like to provide, botulinum injections was the most frequently mentioned; however, lack of training was a strong factor for not offering the procedure.³ The 2012 AAFP CME Needs Assessment Survey indicates that family physicians in general have statistically significant and meaningful gaps in medical knowledge and skill to perform aesthetic procedures/techniques, manage nail disorders, and provide optimal postoperative care for surgical procedures.⁴ Additionally, CME outcomes data for the clinical procedural workshops (CPD) for integumentary procedures from the 2012 AAFP Scientific Assembly show that over 50% of learners engaging in those sessions indicated a need to pursue additional education, with several learners commenting that they had an interest in adding aesthetic skin procedures to their practice.⁵ This suggests that family physicians require continuing medical education, in order to provide optimal care and management of integumentary procedures for their patients.



Data from a recent American Academy of Family Physicians (AAFP) CME Needs Assessment survey indicate that family physicians have statistically significant and meaningful gaps in the medical skill necessary to provide optimal care of patients with various nail disorders.⁴ More specifically, data from 2013 and 2016 AAFP FMX (formerly Assembly): *Nail Disorders* sessions suggest that physicians have knowledge gaps with regard to screening for nail disorders during routine physical exams; diagnosing nail changes for signs of systemic illnesses, especially for signs of melanoma; recognizing when taking a biopsy is appropriate; and evidence-based treatment strategies, including new topical treatments.^{6,7}

A thorough history and examination are imperative for accurate diagnosis and determining the most appropriate course of action.^{8,9} Physicians may be challenged to provide consistent evidence-based care for nail disorders, as there have been no updates to the 1996 guidelines for the management of fungal and nail infection from the American Academy of Dermatology (AAD). There have been more current guidelines published from the United Kingdom and Germany; however, they differ on key recommendations.¹⁰ Despite the lack of new guidelines for the management of fungal and nail infections, the AAD has published updated guidelines of the care for the management of primary cutaneous melanoma, which includes those in the nail unit.¹¹ Patients will present with complaints related to the appearance of their nails. Therefore, it is necessary for the physician not only to be familiar with common nail findings, but also to inspect nails carefully during physical examinations. Nail findings may provide important clues to the diagnosis of systemic illness, limit the differential diagnosis, and focus further work-up.⁹

Physicians may improve their care of patients with nail disorders by engaging in continuing medical education that provides practical integration of current evidence-based guidelines and recommendations into their standards of care, including, but not limited to the following:^{8,9,12-14}

- Oral terbinafine (Lamisil) has been shown to be an effective long-term therapy for onychomycosis caused by fungal infections. Oral itraconazole (Sporanox) may be more effective for yeast or nondermatophytic mold infections.
- Treatment of squamous cell carcinoma of the nail matrix includes Mohs surgery or amputation.
- If no abscess is present, oral antibiotics should be used to treat severe acute paronychia, with consideration for methicillin-resistant *Staphylococcus aureus* coverage in high-prevalence areas and anaerobic bacteria coverage if exposure to oral flora is suspected.
- Surgical treatment modalities for pincer nail include nail bed cutting with or without splinting.
- When preparing a nail specimen to test for onychomycosis, the nail should be cleaned with 70% isopropyl alcohol, then samples of the subungual debris and eight to 10 nail clippings should be obtained. The specimen should be placed on a microscope slide with a drop of potassium hydroxide 10% to 20% solution, then allowed to sit for at least five minutes before viewing under a microscope.
- Periodic acid–Schiff staining can be ordered to confirm infection in patients with suspected onychomycosis. (It is acceptable to treat without ordering a culture or staining)
- Systemic antifungal agents are the most effective treatment for onychomycosis, but cure rates are much less than 100%. Terbinafine (Lamisil) is the most effective systemic agent available.



- When prescribing the topical agent ciclopirox, patients should be informed that it has some benefit in the treatment of onychomycosis, but also has a high failure rate.
- Conservative approaches for the treatment of ingrown toenails without infection include placing a cotton wisp, dental floss, or gutter splint (with or without acrylic nail) under the ingrown nail edge.
- Although the use of oral antibiotics before or after phenolization is widespread, their use is based solely upon historic practice without evidence from clinical trials. Oral antibiotics before or after phenolization do not decrease healing rates or post-procedure morbidity in the treatment of ingrown toenails.
- Partial nail avulsion followed by phenolization or direct surgical excision of the nail matrix are equally effective in the treatment of ingrown toenails.
- Compared with surgical excision of the nail without phenolization, partial nail avulsion combined with phenolization is more effective at preventing symptomatic recurrence of ingrown toenails, but has a slightly increased risk of postoperative infection.
- The digital pressure test may be helpful in the early stages of paronychia infection when there is doubt about the presence or extent of an abscess.
- There is no evidence that treatment with oral antibiotics is any better or worse than incision and drainage for acute paronychia.
- Topical steroids are more effective than systemic antifungals in the treatment of chronic paronychia.
- Patients with simple chronic paronychia should be treated with a broad-spectrum topical antifungal agent and should be instructed to avoid contact irritants.
- A recommendation about recognition of melanoma involving the nail complex would be a good addition. (note to faculty)

Physicians should also receive continuing medical education that can help them keep up their accuracy of identifying signs of associated systemic conditions, such as:⁹

- Clubbing; Koilonychia; Onycholysis; Pitting; Beau's lines; Yellow nail; Color change; Terry's (white) nails; Azure lunula; Half-and-half nails; Muehrcke's lines; Mees' lines; Dark longitudinal streaks; Longitudinal striations; Splinter hemorrhage; and Telangiectasia. (note to faculty - This is a very comprehensive list. Some are more important than others, but during a presentation they can be emphasized more.)

These recommendations are provided only as assistance for physicians making clinical decisions regarding the care of their patients. As such, they cannot substitute for the individual judgment brought to each clinical situation by the patient's family physician. As with all clinical reference resources, they reflect the best understanding of the science of medicine at the time of publication, but they should be used with the clear understanding that continued research may result in new knowledge and recommendations. These recommendations are only one element in the complex process of improving the health of America. To be effective, the recommendations must be implemented. As such, physicians require continuing medical education to assist them with making decisions about specific clinical considerations.

Physicians should also be kept up to date on new treatment therapies, changes to therapies, or warnings associated with existing therapies. Provide recommendations regarding new FDA approved medications for the treatment, including safety, efficacy, tolerance, and cost



considerations relative to currently available options. This is especially important as there exists some controversy regarding the cost-benefit ratio of treatment of onychomycosis.¹⁰ While onychomycosis is the most common fungal infection, representing up to 50% of all nail disorders, there have been no effective agents introduced for more than 10 years.¹⁵ In June 2014, the U.S. Food and Drug Administration (FDA) approved a new efinaconazole 10% topical solution for toenail dermatophyte onychomycosis; and tavaborole (Kerydin) for the treatment of onychomycosis of the toenails.^{16,17}

While some patients may need to be referred to a specialist for enhanced treatment, utilizing a family physician to coordinate the patient's care throughout the medical system is the optimal approach. The AAFP's position statement on disease management states that "Family physicians serve as the optimal care coordinator to assist patients not only with clinical care and information, but in understanding and navigating the health care system." Additionally, "Any disease management program or entity must involve the patient's family physician to maximize continuity of care,"¹⁸ which is especially important in the management and monitoring of comorbidities that can affect outcomes of clinical procedures. The existing physician-patient relationship can help facilitate improved compliance and follow-up, and may improve patient outcomes and satisfaction.

Resources: Evidence-Based Practice Recommendations/Guidelines/Performance Measures

- Evaluation of nail abnormalities⁸
- Current trends in diagnosis and treatment¹²
- Acute and chronic paronychia¹⁴
- Management of the ingrown toenail¹³
- AAD Guidelines of care for the management of primary cutaneous melanoma¹¹
- Clinical guidelines for the recognition of melanoma of the foot and nail unit¹⁹
- AAD Guidelines of care for nail disorders²⁰
- Nail Fungal Infections | Overview (patient education)²¹
- Paronychia | Overview (patient education)²²
- Ingrown Toenails | Overview²³

References

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