2018 Fall
Current Concepts in Dermatology

David Cleaver, D.O., FAOCD
Activity Chair
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Continuing Medical Education Statements

This activity will change your practice and improve patient outcomes!

Content included in AOCD’s Educational conferences will not include individually identifiable health information, in accordance with the Health Insurance Portability and Accountability Act (HIPAA), as amended.

The American Osteopathic College of Dermatology (AOCD) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The American Osteopathic College of Dermatology AOCD designates this live activity for a maximum of 24.5 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

The American Osteopathic College of Dermatology is accredited by the American Osteopathic Association to provide osteopathic continuing medical education for physicians.

The American Osteopathic College of Dermatology designates this program for a maximum of 24.5 AOA Category 1-A credits and will report CME and specialty credits commensurate with the extent of the physician’s participation in this activity.

This meeting will provide a diversified CME presentation focusing on the art and science of dermatology. Information will be presented through lectures and scientific paper presentations. The activity actively encourages members to develop enduring materials as an evolving tool for continuing education. The College is committed to exploring the development of its capacity to expand resources in other educational techniques, including Web-based activities and point-of-care technologies.
American Osteopathic College of Dermatology
Mission Statement &
Continuing Medical Education Needs Assessment

The Continuing Medical Education Program of the American Osteopathic College of Dermatology will support, enhance and advance new models of academic excellence and community health care.

The mission of the American Osteopathic College of Dermatology is to create innovative education, support, and opportunities in dermatology that promote excellence in patient care and community health through advocacy, consciousness, inclusivity, and osteopathy.

Purpose
The purpose of the CME program is to provide AOA-accredited continuing medical education activities to inform the dermatologist physician. The program will provide a mechanism by which its constituents can improve competency, maintain board certification and cultivate lifelong learning. CME will provide physicians with the opportunity to further develop their knowledge through individual and group learning activities. The Continuing Medical Education Committee will monitor the quality of all programs conducted by the AOCD.

Accreditation:
Content included in AOCD’s Educational conferences will not include individually identifiable health information, in accordance with the Health Insurance Portability and Accountability Act (HIPAA), as amended.

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Commercial Support Disclosure
AOCD CME will identify relevant financial relationships prior to awarding AOA Category 1A and/or AMA PRA Category 1 Credit™ for CME activities. All persons in a position to influence or control CME content (course directors, program planning committee members, speakers, authors and staff) will complete a standardized disclosure form. Information about funding will be requested to identify CME activities at higher risk for commercial bias.

All AOCD CME activities will be evaluated by learners and possibly peer reviewers to determine if the content was free of commercial bias. All those identified as having influence and/or control of CME content perceived as either manifesting conflicts of interest or being biased may be disqualified from consideration as resources (planning group member, authors, faculty, etc) in subsequent CME activities.

Learners will be provided with information on identified COI from any of the above categories of persons that affect the content of CME, and that information will be positioned in course materials such that it is read by learners prior to the execution of the CME activity. Speakers for the AOCD will be required to provide disclosure information to meeting attendees during their introduction of their topic. Additionally, disclosure statements are provided in the program schedule given to each meeting attendee and is available online at www.aocd.org.

In accordance with the ACCME’s Standards for Commercial Support of Continuing Medical Education, the Policy on Collection of Financial Relationships and Resolution of Conflicts of Interest (COI) exists to provide guidance for staff, instructors, planners, reviewers and managers of CME activities sponsored by The American Osteopathic College of Dermatology (AOCD). This policy addresses the underlying philosophy of disclosure to learners, mechanisms to collect disclosure information and the parties from whom financial disclosure shall be collected, the mechanisms to resolve COI, and requirements to make disclosure to learners prior to the start of an activity.
Professional Practice Gap Statement:
Physicians need to understand, update and manage changes in dermatology in order to provide optimal patient care. Dermatologists in private practice may not have immediate access to new updates in therapies and treatments. This activity will help to close gaps in physician’s areas of MACRA/MIPS, communication with patients, laser updates, cosmetic dermatology updates, asthma and allergies, practice management and pediatric dermatology.

Expected Outcomes:
As a result of participation in the AOCD/CME activity, practicing clinicians will improve competency; maintain specialty board certification; and cultivate lifelong learning. It is expected that attendees of this meeting will improve their diagnostic competence regarding a wide range of dermatologic conditions. In addition to increased diagnostic competence, enhanced concepts of therapy and treatment in dermatologic care will be gained for implementation in everyday practice.

• Attendees will learn the use of cartilage for nasal defect support, assessing naval valve compromise, staged flaps for construction.
• Attendees will be able to identify different types of body contouring and assess limitations of treatment.
• Attendees will review relevant data in regards to treatment of skin cancer in the elderly population, and review relevant cases.
• Attendees will learn current concepts of diagnosis and treatment of dysplastic nevi, learn different ways of communicating the diagnosis and treatment of dysplastic nevi.
• Attendees will gain the mindset of leadership in the way they approach their practice and patient care, as well as learn how to create a shared vision in the way you run your day to day schedules and standards of patient care.
• Attendees will review the fundamentals of dermatopathology, discuss the key histological features of common and uncommon skin conditions, and demonstrate the relationship between the clinician and dermatopathologist.
• Attendees will review the importance of responsible opioid prescribing to help prevent abuse and misuse of opioids, and determining when to initiate opioids for patients in pain.
• Attendees will learn about the integration of social media into practice, role of social media in dermatology, and TBCD.
• Attendees will gain an understanding of the basic HIPAA requirements applicable to practice and how to identify potential business risks associated with HIPAA.
• Attendees will explore state rules and regulations, discussion of compliance mechanisms, and review medico-legal issues.
• Attendees will gain an understanding of the need to remain current on tropical diseases which may be rare in the U.S.
• Attendees will define, update and review current comorbidities that impact therapeutic decisions in psoriasis management.
• Attendees will review the studies showing associations between chronic inflammatory skin disease and cardiovascular disease risk factors.
• Attendees will review how to evaluate and diagnose sports disorders with dermatologic symptoms, understanding the cutaneous manifestations and side effects of anabolic steroids.
• Attendees will increase awareness of essential oil usage, learn potential side effects, review and discuss escharotic agents.
• Attendees will be able to implement new biopsy coding definitions and coding structure for 2019.
• Attendees will review when to consider allergic contact dermatitis in both common and uncommon presentations.

The overall result being improved physician/provider performance and increased positive patient outcomes.

These objectives will be achieved in a setting which is evidence-based, culturally sensitive and free of commercial bias. The AOCD is committed to the practice of continuing program improvement. The AOCD will actively explore new educational technologies, develop collaborative relationships with other CME providers and seek to build the capacity to evaluate competency-based outcomes among the clinicians we serve. CME will provide physicians with the opportunity to further develop their knowledge through individual and group learning activities.

Needs Assessments:
The activity was developed based upon the needs of physicians within the association identified through:
• An evaluation/survey provided to meeting participants at both our annual and midyear meeting
• Consensus of faculty members within a department or service area
• New advances in dermatologic treatment identified in major publications or research studies
• New methods of diagnosis or treatment
• Availability of new medication(s) or indication(s)
• Development of new technology
• Acquisition of new facilities or equipment
• Input from experts regarding advances in medical knowledge
• Legislative, regulatory, or organizational changes effecting patient care
• Epidemiological data
• Quality assurance/audit data
• Statistics infection control data
• Surgical procedures statistics
• Journal articles/literature citations

The AOCD Continuing Medical Education Committee works to assure the inclusion of appropriate Osteopathic content in the
Continuing Medical Education activities presented by AOCD, and to assure that the Continuing Medical Education Programs of the AOCD will achieve the stated objectives of each meeting in a setting which is evidence-based, culturally sensitive and free of commercial bias.

The Continuing Medical Education Committee of the AOCD will monitor the quality of all activities conducted.

**Content Areas:**
The AOCD approves the CME activities based upon needs assessment data to ensure that all offerings present current, up to date and cutting edge information. Specific areas of emphasis include, new advances in dermatologic treatment, new methods of diagnosis or treatment, availability of new medication(s) or indication(s), development of new technology, advances in medical knowledge and legislative, regulatory, or organizational changes effecting patient care. The Osteopathic Core Competencies of Osteopathic Philosophy, Principles, Practice and Manipulative Medicine, Medical Knowledge, Patient Care, Interpersonal and Communication Skills, Professionalism, Practice-Based Learning and Improvement and System-Based Practice will also be incorporated into all CME activities.

**Target Audience:**
The primary target audience of the CME activities conducted by the AOCD are the dermatologist physician members. The College also serves community physicians, volunteer clinical faculty, academic clinicians and students affiliated with the AOCD. The activity will also actively seek to broaden its audience through developing affiliations with CME providers on the national level.

**Faculty Disclosure:**
As a sponsor accredited by the AOA, it is the policy of the AOCD to require the disclosure of anyone who is in a position to control the content of an educational activity. All relevant financial relationships with any commercial interests and/or manufacturers must be disclosed.

**AOCD Anti-Trust Statement**
Members participating in meetings, events or activities conducted or sponsored by the American Osteopathic College of Dermatology or the Foundation for Osteopathic Dermatology, have an obligation to review and follow the AOCD’s Antitrust Compliance Policy. They should particularly refrain from making statements or distributing materials at AOCD, Foundation meetings or events that would violate the policy, such as suggesting minimum fees for particular services, urging AOCD members to boycott third party payers based on reimbursement levels or other terms of contracting with such entities, or recommending that AOCD members avoid competing with each other in certain geographic areas or markets or across specialties.

**Disclosure of Commercial Support of CME:**
As you undoubtedly know from the national media, there has been much discussion concerning the relationships between CME sponsors, faculty and commercial companies providing support of CME.

Both the American Osteopathic Association and the Committee on Continuing Medical Education have adopted regulations for ethical actions in this area which the American Osteopathic College of Dermatology endorse and have adopted for all our educational activities.

Please be assured that having an affiliation with a company does not imply in any way that something is wrong or improper; however, we want to inform attendees that such a relationship exists.

Should you have any questions regarding the facilities, handouts, activity content, or concerns about CME compliance with the AOA “Uniform Guidelines,” feel free to contact the AOCD representative:

Marsha A. Wise, BS  
Executive Director  
P.O. Box 7525  
Kirksville, MO 63501  
660-665-2184  
800-449-2623

Unresolved issues regarding compliance with the AOA “Uniform Guidelines” can be brought to the attention of the AOA Division of CME by calling: 800-621-1773, or by writing:

AOA CME Office  
142 East Ontario Street  
Chicago, IL 60611
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Disclosures: No relevant financial relationships to disclose

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Disclosures: Director, Officer or Employee of: Wayne County Osteopathic Medical Association (Board Member 2012-2013)

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Disclosures: Speaker: Castle Biosciences

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CME Committee
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Disclosures: No relevant financial relationships to disclose

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Disclosures: No relevant financial relationships to disclose

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Disclosures: No relevant financial relationships to disclose

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Disclosures: No relevant financial relationships to disclose

John Grogan
Resident Coordinator
Disclosures: No relevant financial relationships to disclose

Shelley Wood
Grants Coordinator
Disclosures: No relevant financial relationships to disclose
Meeting Faculty & Needs Assessments

David Cleaver, DO, FAOCD
Program Chair
Dr. David Cleaver graduated from Truman State University with a BS in Biology. He graduated from KCOM in 2006 as a Doctor of Osteopathy. He did his Internship at Richmond Heights/Case Western University Hospital in Cleveland, OH and he completed his Dermatology training at St. Joseph Mercy Health System of Michigan State University in Ann Arbor, Michigan in June 2010. Dr. Cleaver is board-certified in dermatology and a Fellow of American Osteopathic College of Dermatology.

Disclosures: Director, Officer or Employee of: KCOM (Assistant Professor); Speaker: Abbvie; Sibling is speaker for: Abbvie

Derrick Adams, DO, FAOCD
Growing up in Oklahoma, Dr. Derrick Adams earned his Bachelor of Science in Physiology at Oklahoma State University. After graduation he was commissioned into the U.S. Air Force and completed his internship in internal medicine at Wilford Hall Medical Center in San Antonio, TX. Dr. Adams was stationed at Travis Air Force Base where he served as a Captain and General Medical Officer at David Grant Medical Center. After his tour of duty, Dr. Adams spent three intensive years at Michigan State University, where he completed his residency in dermatology with a special focus in dermatological surgery.

Dr. Adams has a special interest in skin cancer and medical dermatology, authoring a wide range of articles across dermatology, pharmacology and dermatological surgery. He treats all diseases of the skin to include: psoriasis, eczema and autoimmune diseases. As the field of dermatology arose from within internal medicine and Dr. Adams’ approach to the skin takes into account the global health and well-being of the patient.

A particular interest for Dr. Adams is evaluating the cost/benefit ratio and science behind treatments. He prides himself on being the “Consumer Reports” of dermatology and not over-treating patients.

Bloodroot and Essential Oils: What You Need to Know

Objectives:
1. Increase awareness of essential oil usage by patients
2. Learn potential side effects of essential oils
3. Review and discuss escharotic agents

Needs:
1. Advances in medical knowledge
2. Legislative, regulatory, or organizational changes effecting patient care

References:

Core competencies: 2, 3, 4

Disclosures: None

Reagan Anderson, DO, FAOCD
Dr. Reagan Anderson specializes in general dermatology and in Mohs micrographic surgery for the treatment of skin cancer. After graduating from Rampart High School in Colorado Springs, CO, Dr. Anderson moved to Vancouver, British Columbia where he attained his Bachelor of Science in biology from the University of British Columbia and a Master of Christian Studies degree from Regent College. Dr. Anderson was then invited to attend the founding osteopathic medical school, Kirksville College of Osteopathic Medicine. Upon matriculation, Dr. Anderson was commissioned in the United States Navy where he spent the majority of his time serving the United States Marine Corps as the First Reconnaissance Battalion Surgeon.
Dr. Anderson left the military in order to pursue dermatology. During his three-year dermatology residency at the Michigan State University Consortium/Oakwood Southshore Medical Center, he was actively involved in academic pursuits, which included national and international lecturing, as well as publishing several dermatologic articles. From October 2008-October 2009, Dr. Anderson represented all osteopathic dermatology residents as the resident liaison for the American Osteopathic College of Dermatology.

**Dysplastic Nevi**

**Objectives:**
1. Learn current concepts of diagnosis and treatment of dysplastic nevi
2. Learn different ways of communicating the diagnosis and treatment of dysplastic nevi
3. Learn tools to help manage the medicolegal aspects of dysplastic nevi

**Needs:**
1. New advances in dermatologic treatment
2. New methods of diagnosis or treatment
3. Advances in medical knowledge
4. Legislative, regulatory, or organizational changes effecting patient care.

**References:**

**Core Competencies:** 1, 2, 3, 4

**Disclosures:** Co-Founder & Writer: Doctors Quarterly; Co-Founder: Your Health University

**Thomas Barlow, DO**

Dr. Thomas Barlow is a dermatologist in the U.S. Navy and has served in Iraq, Japan, El Salvador, Brazil, and several locations in the United States.

He graduated from Kirksville College of Osteopathic Medicine in 2006 and received a doctorate of health education from AT Still University of Health Sciences in 2009. He is currently completing a Mohs surgery fellowship at Scripps Clinic. His research interests include lasers, skin microbiome, and education.

Dr. Barlow lives in San Diego with his wife, Keriann, and their 4 children, and travels home to Utah to ski and hike.

**Proelia in Umbra: What We Can Learn From U.S. Navy Dermatologists**

**Objectives:**
1. Understand how cross-professional collaborations can benefit the practice of dermatology
2. Understand the need to remain current on tropical diseases which may be rare in the United States
3. Consider the possible innovations that each of us can make to advance the field of dermatology

**Needs:**
1. New advances in dermatologic treatment
2. New methods of diagnosis or treatment
3. Development of new technology
4. Advances in medical knowledge
5. Legislative, regulatory, or organizational changes effecting patient care.

**References:**
Lloyd Cleaver, DO, FAOCD
Dr. Lloyd Cleaver, DO founded the Cleaver Dermatology Clinic in 1986. Dr. Cleaver completed his internship and residency at the Navy Regional Medical Center in San Diego, CA. He is a graduate of Kirksville College of Osteopathic Medicine. He is also a board-certified dermatologist, Fellow of American Osteopathic College of Dermatology and board-certified in Mohs micrographic surgery.

A leader in medical education, Dr. Cleaver is a Professor of Dermatology at the Kirksville College of Osteopathic Medicine/A.T. Still University and Assistant Dean of Continuing Medical Education at the Kirksville Osteopathic Medical Center/A.T. Still University. He serves as Vice Chair for the Certification Committee of American Osteopathic Association and has been Vice Chair and is currently Secretary to the American Osteopathic Board of Dermatology. He is a Past President of the Kirksville Osteopathic Alumni Association and a Past President of American Osteopathic College of Dermatology.

Osteopathic Continuous Certification Update

Objectives:
1. Describe the objectives of maintenance of Osteopathic Continuous Certification
2. Review the requirements of OCC
3. Describe changes in OCC

Needs:
1. Legislative, regulatory, or organizational changes effecting patient care

References:

Miranda Reed Cleaver, DO
Miranda Reed Cleaver, D.O. is a Georgia native. She grew up in Chatsworth, GA and attended the University of Georgia in Athens. She graduated from the University of Georgia with a bachelor of science in biology in 2006. After college, Dr. Cleaver continued her education and attended medical school at the Philadelphia College of Osteopathic Medicine, Georgia Campus, located in Suwanee, GA. She then went on to complete her four years of training in anesthesiology at McLaren Oakland Hospital, part of the Michigan State University Statewide Campus System, in Pontiac, MI, a suburb of Detroit. Following the completion of her residency training, Dr. Cleaver then completed her fellowship in pain management at McLaren Oakland Hospital, part of the Michigan State University Statewide Campus System, in Pontiac, MI. During her fellowship training, she performed numerous interventional procedures in all areas of pain management. Once her training was complete, Dr. Cleaver then went on to practice for two years in Missouri, before moving to Georgia to establish a pain management practice in Cumming, GA. Dr. Cleaver has now been in private practice for over a year.

Pain Management in Dermatology

Objectives:
1. Discuss the importance of responsible opioid prescribing to help prevent abuse and misuse of opioids
2. Opioid selection dosage, duration, follow up and discontinuation
3. Determining when to initiate opioids for patients in pain

Needs:
1. New advances in dermatologic treatment
2. New methods of diagnosis and treatment
3. Advances in medical knowledge

References:
2. https://www.acpohne.org

Core Competencies: 2, 3, 4, 5, 6

Disclosures: None

Nathan J. Cleaver, DO, FAOCD
Nathan J. Cleaver, D.O., received his medical degree from Kirksville College of Osteopathic Medicine, located in Kirksville, MO. Dr. Cleaver completed his internship at the St. John Health System in 2011, located in Oakland County, MI, a suburb of Detroit. He completed his dermatology residency, where he served as chief resident, at Michigan State University – St. Joseph Mercy Hospital in Ann Arbor, MI. After completion of his residency, Dr. Cleaver completed fellowships in dermatopathology at the Ackerman Academy of Dermatopathology and Mohs micrographic surgery at Northeast Regional Medical Center. Dr. Cleaver’s professional interests include cutaneous oncology, analysis and management of pigmented lesions and melanoma, and tropical and infectious dermatology and dermatopathology. His private practice is in Cumming, Georgia and encompasses all aspects of dermatology, including medical dermatology, cosmetic dermatology, Mohs micrographic surgery, and dermatopathology.

Dysplastic Nevi: Dermatopathology Update
This lecture will review dermatopathology topics and case discussions.

Objectives:
1. Review the fundamentals of dermatopathology
2. Discuss the key histological features of common and uncommon skin conditions
3. Demonstrate the relationship between the clinician and dermatopathologist

Needs:
1. New methods of diagnosis or treatment
2. Advances in medical knowledge

References:
3. Rapini Practical Dermatopathology; 1st Edition

Core Competencies: 2, 3, 4, 6

Disclosures: Speaker: Castle Biosciences

Matthew Elias, DO, FAOCD
Dr. Matthew J. Elias is a prominent dermatologist serving southern Florida out of Elias Dermatology®. Dr. Matthew Elias supports his practice with a strong educational background, beginning in 1999 when he earned his undergraduate degree from Tulane University in Louisiana. He went on to graduate from medical school at the Nova Southeastern University College of Osteopathic Medicine. He finished his residencies at Broward General Medical Center and SUNY Downstate Medical Center College of Medicine. He is a member of American Osteopathic College of Dermatology, American Academy of Dermatology, American Society for Dermatology Surgery, American Society of Mohs Surgery, Florida Society of Dermatology and Dermatological Surgery, and National Alopecia Areata Foundation.

Dr. Elias believes a successful and competent medical practitioner must possess both a heartfelt devotion towards assisting all human beings and a tremendous yearning for knowledge.
Social Media in the Dermatology Practice

Objectives:
1. Integration of social media into practice
2. Role of social media in dermatology
3. TBCD

Needs:
1. Development of new technology
2. Advances in medical knowledge
3. Legislative, regulatory, or organizational changes effecting patient care

References:

Core Competencies: 4, 5, 6

Disclosures: Speaker: Cutera; Spouse is employee of: Modernizing Medicine

Bradley Glick, DO, FAOCD
Dr. Glick is the Program Director of the Dermatology Residency at Larkin Hospital Palm Springs Campus, a LECOM OPTI, Clinical Assistant Professor of Dermatology at the FIU Herbert Wertheim College of Medicine in Miami, FL and Director of Clinical Research at GSI Clinical Research in Margate, FL. Dr. Glick is the current Secretary Treasurer for the Florida Society for Dermatology and Dermatologic Surgery, Board Member of the American Osteopathic Board of Dermatology and serves on the Election Oversite Task Force for the American Academy of Dermatology.

Dr. Glick is considered a thought leader in the area of immune mediated skin diseases and is here today to provide an update on current and future therapies for plaque psoriasis.

2018 Psoriasis Therapy Update

Objectives:
1. Review the current immune pathophysiology of psoriasis
2. Define, update and review current comorbidities that impact therapeutic decisions in psoriasis management
3. Update and characterize current and emerging therapies for patients with psoriatic disease

Needs:
1. New advances in dermatologic treatment
2. New methods of diagnosis or treatment
3. Availability of new medication(s) or indication(s)
4. Advances in medical knowledge

References:

Core Competencies: 1, 2, 3, 4, 5, 6, 7

Disclosures: Speaker: Abbvie, Novartis, LEO, Celgene, Sanofi Genzyme, Regeneron, Lilly; Stock Holder: Top Med
Dr. Steven Grekin has made it his personal and professional mission to help his patients put their best face forward. Years of research at the International Skin Rejuvenation Institute in Paris, France, and Quebec, Canada, have led Dr. Grekin to understand the secrets to younger, smoother, more radiant skin. Respected here and abroad as an expert in cosmetic dermatology, Dr. Grekin comes from a long line of physicians – six are dermatologists. He has participated in international teaching and training courses and is an internationally recognized lecturer in his field. Guided by cutting-edge principles of modern dermatology, natural medicine and the highest quality medical care, Dr. Grekin offers his patients an elegant, intelligent program distinguished by its unique flexibility to restore every skin type to its youthful, natural best. His family has been providing health care in the United States for almost ten years. Dr. Grekin is committed to helping patients from all over the world. He now offers his programs online, so that he may reach out and help as many people as he can put their best face forward.

Patients Come Second: A Dermatology Practice’s Unique Approach

Objectives:
1. Create ideas for creating a culture of caring
2. Learn examples of techniques to create a team
3. Learn more convenient methods to perform skin exams

Needs:
1. New advances in dermatologic treatment
2. New methods of diagnosis and treatment
3. Development of new technology

References:
1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1705904/

Core Competencies: 1, 2, 3, 4, 5, 6, 7

Disclosures: Research Sponsors: Allergan, Valeant, Coherus, Mimetica, Galderma, Promise, J&J Psolar, HedgePath; Director, Officer or Employee of: Advanced Dermatology

Dr. Francisca Kartono, DO, is a board-certified dermatologist practicing in Canton and Brighton, MI. Dr. Kartono graduated with honors from UCLA with a Bachelor of Science in Biochemistry. She received her osteopathic medical school training from Western University of Health Sciences in Pomona, CA. She then made a move to Michigan and completed her internship at Henry Ford Hospital and her dermatology residency training at Botsford and Pontiac Osteopathic Hospitals through Michigan State University. After completing her dermatology residency, she subsequently pursued a fellowship at the Ohio State University Medical Center with a focus on cutaneous lymphoma. Previously, Dr. Kartono has served as assistant clinical professor in Dermatology at the Wexner Ohio State University Medical Center.

Dr. Kartono has numerous dermatology publications, lectured at national meetings, and was involved with clinical trials in psoriasis, hidradenitis suppurativa, and lupus. She enjoys treating various general medical and surgical dermatology concerns, as well as administering phototherapy treatments for her patients.

Dr. Kartono lives in Canton with her husband and has made Michigan her permanent home.

Medical Dermatology Update

Objectives:
1. Understand the studies showing associations between chronic inflammatory skin disease and cardiovascular disease risk factors
2. Review current guidelines and recommendations in the management of atopic dermatitis, psoriasis and hidradenitis suppurativa
3. Review the efficacy and safety concerns with new and current biologic agents for chronic inflammatory skin disease
Needs:
1. New advances in dermatologic treatment
2. New methods of diagnosis or treatment
3. Availability of new medication(s) or indication(s)
4. Development of new technology
5. Advances in medical knowledge

References:

Core Competencies: 2, 3, 6, 7

Disclosures: None

Will Kirby, DO, FAOCD
Board-certified dermatologist, Dr. Will Kirby, has a degree in biology from Emory University. He received his medical degree from Nova Southeastern University and completed his first year of postgraduate training in internal medicine at Mount Sinai Medical Center. His dermatology residency training took place in association with Western University/Pacific Hospital where he was honored by being selected to serve as chief resident in the Department of Dermatology. Academically, Dr. Kirby proudly serves as a Clinical Assistant Professor of Dermatology at Western University of Health Science and as a Clinical Assistant Professor in the Department of Internal Medicine, Division of Dermatology, for Nova Southeastern University. He is also an expert reviewer for the Osteopathic Medical Board of California in dermatology.

Dr. Kirby lectures at national medical conventions, publishes articles in peer reviewed medical journals, authors and co-authors medical text book chapters and has the prestigious honor of serving on the editorial advisory board of popular dermatological publications including the Dermatologist and the Journal of Aesthetic and Clinical Dermatology. He has served as the national spokesman for Johnson & Johnson's Neutrogena Dermatologics and Kimberly Clark's Truist Skin Care lines.

A licensed osteopathic physician and surgeon in the state of California since 2002, Dr. Kirby is recognized as a Fellow by the American Osteopathic College of Dermatology. He is currently a member of the American Osteopathic College of Dermatology (AOCD) and the American Osteopathic Association (AOA). In the past, Dr. Kirby has held membership in the American Medical Association (AMA), the American Society for Laser Medicine and Surgery (ASLMS), the American Society of Dermatologic Surgery (ASDS) and the American Academy of Dermatology (AAD). Having appeared on more than 35 different television shows, Dr. Kirby was a featured physician on E! Entertainment Television’s “Dr. 90210” and has frequently been seen on “The Doctors,” where he showcases his dermatology practice. Other TV appearances have included “The Young & The Restless,” “LA Ink,” “The Real Housewives of Orange County,” “Regis & Kelly,” “The Talk” and “Chelsea Lately” and has appeared on QVC more than 100 times. Dermatologist, professor, spokesman, researcher and author, Dr. Kirby is well-recognized as one of the country's leading dermatologists!

Creative Ways to Maximize Professional Efforts Most Effectively and Avoid Practice Pitfalls

Objectives:
1. Exploration of state rules and regulations
2. Discussion of compliance mechanisms
3. Review of medico-legal issues

Needs:
1. Legislative, regulatory, or organizational changes effecting patient care

References:
2. http://scholarship.law.edu/cgi/viewcontent.cgi?article=1529&context=jchlp

Core competencies: 4, 5

Disclosures: None

Kari Martin, MD, FAAD

Kari Martin, MD was born and raised in North Dakota before completing her undergraduate education at William Jewell College in Liberty, MO. She graduated from medical school at the University of Missouri in Columbia and stayed there for residency training in dermatology as well. Her pediatric dermatology fellowship was completed at the Children's Hospital of Wisconsin in Milwaukee. She returned as faculty to the University of Missouri and has been practicing pediatric and adult dermatology there since finishing training. She enjoys teaching medical students and residents and serves as the Dermatology Residency Program Director and the Director of Medical Education for the department. She also enjoys the diagnosis and management of allergic contact dermatitis and has established mid-Missouri's first comprehensive patch testing center.

Decoding Delayed Hypersensitivity Reactions

Atopic Dermatitis Update

Objectives:
1. Understand when to consider allergic contact dermatitis (ACD) in both common and uncommon presentations
2. Understand differences between ACD in pediatric and adult patients
3. Explain best practices surrounding diagnosis and patient education for ACD and systemic contact dermatitis

Needs:
1. New advances in dermatologic treatment
2. New methods of diagnosis or treatment
3. Advances in medical knowledge

References:

Core Competencies: 2, 3, 6

Disclosures: None

Jason Mazzurco, DO, FAOCD

Dr. Jason D. Mazzurco is a board-certified dermatologist and fellowship-trained Mohs surgeon. Originally from New York, Dr. Mazzurco moved to the Midwest where he was a two time Big Ten Champion gymnast at The Ohio State University. He earned his medical degree from Ohio University Heritage College of Osteopathic Medicine. He then completed his residency training in dermatology and fellowship training in Mohs micrographic surgery at St. Joseph Mercy Hospital/Michigan State University. He joined Dermatology Specialists and moved to Virginia with his wife and daughter in 2014. Dr. Mazzurco practices primarily surgical dermatology, treating both benign and malignant lesions of the skin. He specializes in
the diagnosis and treatment of skin cancer, Mohs surgery and reconstructive surgery. Dr. Mazzurco enjoys outdoor activities and spending time with his family and friends.

Dermatologic Surgery in the Elderly: Case Review and Techniques

Objectives:
1. Review relevant data in regards to treatment of skin cancer in the elderly population
2. Discuss relevant surgical techniques that aid in treatment of the elderly populations
3. Review relevant cases in an interactive format involving skin cancer treatment in the elderly

Needs:
1. New advances in dermatologic treatment
2. New methods of diagnosis and treatment
3. Advances in medical knowledge

References:

Core Competencies: 1, 2, 3, 4, 5, 6, 7

Disclosures: None

Lauren Mazzurco, DO
Dr. Lauren Mazzurco has been part of the Eastern Virginia Medical School (EVMS) community and faculty serving as an Assistant Professor of Medicine since January 2015. Prior to joining EVMS, she completed an osteopathic internal medicine residency at Botsford Hospital in Farmington Hills, MI and completed a 1-year clinical fellowship in geriatric medicine at University of Michigan, Ann Arbor, MI. This was followed by a VA special fellowship in geriatric medicine at the VA Ann Arbor Health System, Ann Arbor, MI. She then went on to complete a fellowship in hospice and palliative medicine also at the University of Michigan. Dr. Mazzurco practices in diverse settings, including an inpatient palliative care consult service and a skilled nursing facility where she supervises 3rd and 4th year clerkship students, internal medicine and family medicine residents, and geriatric medicine fellows. Most recently she has transitioned into the position of Associate Program Director for the Geriatric Medicine Fellowship at EVMS. Dr. Mazzurco is the Director for Case-Based Learning at EVMS and has served as the CO-PI on the AMA Accelerating Change in Medical Education Grant which has support integration of health system science, chronic disease prevention and management, and high value care into the undergraduate medical curriculum.

Geriatric Considerations in Dermatology

Objectives:
1. Describe prognostic considerations in the care of older adults in your dermatology practice
2. Describe normal aging changes that affect older adults tolerance of management and/or interventions in dermatology
3. Recognize non-medical factors that affect patient outcomes in the older adult population

Needs:
1. New methods of diagnosis or treatment
2. Advances in medical knowledge

References:

Core Competencies: 3

Disclosures: None
**Billing and Coding Update**

Objectives:
1. Implement new biopsy coding definitions and coding structure for 2019
2. Use proper criteria for .25 modifier selection
3. Recognize common coding snafus and avoid them

Needs:
1. Legislative, regulatory, or organizational changes effecting patient care

References:
1. CPT 2018 (available from AMA)

Core Competencies: 5, 7

Disclosures: None
2. New methods of diagnosis and treatment
3. Advances in medical knowledge

References:

Core Competencies: 2, 3

Disclosures: Key Organizational Leader: Revision Skincare; Spouse is Key Organizational Leader: Revision Skincare

Leslie Rojas, Esq.
Leslie A. Rojas, Esq., is an attorney who focuses her practice on healthcare regulatory, transactional and corporate matters. Ms. Rojas devotes a substantial portion of her practice to HIPAA and state privacy and security law matters, healthcare fraud and abuse issues, healthcare joint ventures and business transactions, practitioner employment agreements, and Medicare enrollment, billing and reimbursement issues.

Ms. Rojas represents a variety of healthcare businesses and professionals, including physicians and other practitioners, group practices, laboratories, imaging centers, pharmacies, hospitals, home health agencies, assisted living facilities, and healthcare compliance consultants. Through collaboration with other attorneys and law firms, Ms. Rojas ensures that her healthcare clients receive full-service legal representation, including representation related to real estate law, tax law, intellectual property law, litigation services, etc.

Ms. Rojas currently serves on the Governing Council for the Health Care Law Section of the State Bar of Michigan, and serves on the Health Care Law Section’s Medical Legal Subcommittee and Technology Subcommittee. She is also a committee member for the American Health Lawyer Association’s Physician Organization Practice Group. Additionally, Ms. Rojas has authored many articles for the American Bar Association’s Health Law Section.

In her spare time, Ms. Rojas serves as the President of the Paraguayan-American Association of Physicians, a non-profit charity that raises money for the medical school in Asuncion, Paraguay, as well as for other causes in Latin America. Ms. Rojas also serves as Vice-President of the Mental Illness Research Association, which raises money for mental illness related research grants and mental illness educational presentations in secondary schools throughout Michigan and Ohio.

Minimizing HIPAA Liability

Objectives:
1. An understanding of the basic HIPAA requirements applicable to their practice, and how to identify potential business risks associated with HIPAA
2. How to minimize HIPAA liability, including severe financial consequences, whether due to human error or emerging cyber threats
3. Knowing that it is impossible to completely eliminate the chance of a HIPAA breach, attendees will walk away with a basic understanding of how to minimize the business impact a HIPAA breach will have on their practice

Needs:
1. Legislative, regulatory, or organizational changes effecting patient care

References:

Core Competencies: 4, 5, 6

Disclosures: None
Michael J. Scott, III, DO, FAOCD
Dr. Michael J Scott is a Seattle-based dermatologist and director of Seattle Dermatology Center. His areas of interest include general medical and surgical dermatology, pediatrics, sports dermatology, as well as preventive medicine and public health. A few examples of his service to dermatology includes, but is far from limited to, the numerous articles published in multiple publications, lecture and poster presentations at local and national meetings, lecture presentations to community groups in Seattle, United States Olympic Committee Crew Chief Drug Control Program physician, sports medicine volunteer, and a USA Amateur Boxing Federation volunteer ringside physician. Dr. Scott has also served in various leadership roles within the AOCD, AOBD, Washington State Osteopathic Medical Association, and other societies. He is Assistant Professor of Clinical Medicine at the Pacific Northwest University of Health Sciences, a Past President of the American Osteopathic College of Dermatology, and is currently serving as Chair of the American Osteopathic Board of Dermatology.

Sports Dermatology

Objectives:
1. Evaluate and diagnose sports disorders with dermatologic symptoms
2. Understanding the cutaneous manifestations and side effects of anabolic steroids
3. Formulate a differential diagnosis of dermatological disorders encountered in sports

Needs:
1. New advances in dermatologic treatment
2. New methods of diagnosis or treatment
3. Advances in medical knowledge

References:

Core Competencies: 2, 3, 6

Disclosures: None

Amy Spizuoco, DO, FAOCD
Dr. Amy Spizuoco is a board-certified dermatologist and dermatopathologist. She received her Bachelor of Arts at SUNY Binghamton with a double major in Italian and biology. She earned her medical degree at New York College of Osteopathic Medicine. She completed a medical internship at Lutheran Medical Center. She then went on to Alta Dermatology Residency Program in Mesa, AZ, where she spent a year researching reflectance confocal microscopy and subsequently completed her dermatology residency, serving as chief resident her final year. During residency she received training at the Mayo Clinic Scottsdale, as well as Phoenix Children's Hospital. After residency, Dr. Spizuoco completed a fellowship in dermatopathology. Currently, Dr. Spizuoco is a member of the American Academy of Dermatology, the American Osteopathic College of Dermatology, the American Society for Dermatopathology, the American Society of Mohs Surgery, the American Society for Dermatologic Surgery, the New York State Osteopathic Medical Society, the Women's Dermatologic Society and the Dermatologic Society of Greater New York.

Dysplastic Nevi: Dermatopathology Update
This lecture will review dermatopathology topics and case discussions.

Objectives:
1. Review the fundamentals of dermatopathology
2. Discuss the key histological features of common and uncommon skin conditions
3. Demonstrate the relationship between the clinician and dermatopathologist

Needs:
1. New methods of diagnosis or treatment
2. Advances in medical knowledge
References:
3. Rapini *Practical Dermatopathology*, 1st Edition

Core Competencies: 2, 3, 4, 6

Disclosures: Speaker: Pfizer, Celgene

### Joan Tamburro, DO, FAOCD
Dr. Joan Tamburro is a board-certified dermatologist and pediatric dermatologist.

Dr. Tamburro earned her medical degree from Ohio University College of Osteopathic Medicine in Athens, OH. She completed a traditional rotating internship and residency training in dermatology at Grandview Hospital and Medical Center in Dayton, OH. Following residency, Dr. Tamburro completed a pediatric dermatology fellowship at the Medical College of Wisconsin Clinics in Milwaukee, WI.

Dr. Tamburro was appointed to the dermatology department at the Cleveland Clinic, in Cleveland, OH. Her special interests include: pediatric dermatology, laser therapy, vascular birthmarks, port-wine stains, and hemangiomas. Dr. Tamburro has been published in multiple medical journals, and in 2012 & 2014 she was presented with the Patient's Choice Award and the Compassionate Doctor Recognition Award. She is a member of the elite team of physicians that create the Vascular Anomalies Clinic (VAC) team at the Cleveland Clinic in Cleveland, Ohio.

### Pediatric Dermatology

Objectives:
Pending

Needs:
Pending

References: Pending

Core Competencies: Pending

Disclosures: Please see supplemental handout at registration

### Nathan Uebelhoer, DO
Dr. Uebelhoer began practicing dermatologic and laser surgery 20 years ago. As an expert in his field, he has since lectured across the United States and throughout the world, authored numerous peer-reviewed articles and book chapters on the subject, and won awards for his teaching and military service. He grew up in Massachusetts and after completing medical school at the University of New England, he went to the Naval Medical Center in San Diego for internship and dermatology residency. Following Board Certification by the American Board of Dermatology, he obtained sub-specialty training in skin-cancer surgery and facial cutaneous reconstruction through a one-year fellowship in Cosmetic and Laser Surgery at SkinCare Physicians of Chestnut Hill in Boston, Massachusetts. Since then, he has served as the division head of Mohs and Laser Surgery with the Navy in San Diego until retiring as a Commander in 2013.

Dr. Uebelhoer was also trained as a Naval Flight surgeon and private pilot and proudly served in this capacity deployed with the U.S. Marine Corps. In addition to Procedural Dermatology, he has been heavily involved in rural and tropical medicine, and he continues to lecture throughout the world on his pioneering work with scar rehabilitation in wounded warriors. When not in the operating room, Nathan is with his family and occasionally takes the time to play golf and the piano.

### Burn and Traumatic Scar Rehabilitation: The New Standard
Objectives:
1. To understand the various types of scars
2. To recognize the advances in cutaneous surgery for scar rehabilitation and how they relate to osteopathic principles and practice
3. To appreciate the responsibility as dermatologic specialists in offering this service to the millions for patients debilitated by traumatic scarring

Needs:
1. New advances in dermatologic treatment
2. New methods of diagnosis or treatment
3. Development of new technology
4. Advances in medical knowledge
5. Legislative, regulatory, or organizational changes effecting patient care

References:
Pending

Core Competencies: 1, 2, 3, 4, 5, 6

Disclosures: None

James Warrick
James is a trusted relationship for women and men. His client list is made up of leaders in every industry who say, “James is an innovator in developing people.” It’s the sharpness of the conversation, the challenge of new thinking, the action that is taken… it’s what we hope for in a coaching relationship.

James holds a Masters in Coaching and Leadership Development. He has earned the prestigious credentials of a Professionally Certified Coach (PCC) with the International Coach Federation. James has taught over 50 graduate-level coaching courses and trained over 500 new coaches.

James coaches leaders from a wide range of organizations and sectors: Nike, Intel, Merrill Lynch, Williams Sonoma, R2C Advertising, Pacific Foods, Compassion International, Clark Nuber Global Accounting, Washington State, Planar Systems, Chapman University, health care providers, entrepreneurs and bestselling authors.

The best part is, James is gutsy. The gutsy that asks the questions that you’re dodging. The gutsy that helps leaders stop making it about themselves. The gutsy that helps people listen to their own gut and move forward with confidence. James brings proven tools and a process to develop people.

James’ wife is his best friend, and his four kids still wake him up at night.

The Advantage of Leadership in Dermatology

Objectives:
1. The mindset of leadership in the way you approach your practice and patient care
2. Influence your staff to contribute more to your practice
3. Create a shared vision in the way you run your day to day schedules and standards of patient experience

Needs:
1. Development of new technology
2. Legislative, regulatory, or organizational changes effecting patient care

References:

Core Competencies: 4, 6

Disclosures: Consultant: Tru-Skin Dermatology
**Christopher Weyer, DO, FAOCD**  
A native to Arizona, Dr. Christopher Weyer received his undergraduate degree from the University of Arizona. He then worked at the Arizona Cancer Center and in Department of Pathology under the direction of Dr. Ray Nagle. While there he researched the growth, invasion and metastasis of prostate cancer before his acceptance to medical school.

Dr. Weyer graduated from Kirksville College of Osteopathic Medicine in 2006. He then completed a traditional rotating internship at Richmond Heights Hospital in Ohio, followed by a dermatology residency in Kirksville, MO at Northeast Regional Medical Center. He continued his training with a fellowship in Mohs Surgery at the Center for Surgical Dermatology in Columbus, OH.

Following fellowship, Dr. Weyer was on staff at the Cleveland Clinic in the Dermatology and Plastic Surgery Institute as a Mohs surgeon from 2011-2012 before returning to his native home of Arizona. Back in Arizona, he co-founded Dermatology and Plastic Surgery of Arizona with his wife, Dr. Jamie Moenster.

He is the distinguished winner of the Tromovitch Award from the American College of Mohs Surgery in 2012. This award is given to the graduating fellow with the most significant contribution to research in skin cancer/Mohs surgery.

An avid outdoorsman, he enjoys fishing and hunting. He maintains an active lifestyle with CrossFit and soccer. He also enjoys cooking and travel with his wife, Dr. Jamie Moenster.

**Mohs Reconstructions: Contours & Cartilage**

**Objectives:**
1. Use of cartilage for nasal defect support
2. Assessing nasal valve compromise
3. Staged flaps for reconstruction

**Needs:**
1. New advances in dermatologic treatment
2. New methods of diagnosis or treatment
3. Advances in medical knowledge

**References:**
1. Fred Merick. “Nasal Reconstruction; Art and Practice”.

**Core Competencies:** 2, 3

**Disclosures:** Key Organizational Leader: Revision Skincare; Spouse is Key Organizational Leader: Revision Skincare

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**Edward Yob, DO, FAOCD**  
Dr. Edward Yob is board certified by the American Osteopathic Board of Dermatology in dermatology with a certificate of added qualification in Mohs micrographic surgery. Dr. Edward Yob received his medical degree from the Philadelphia College of Osteopathic Medicine and completed his residencies at the United States Air Force Regional Hospital and Boston University/New England Medical Center.

His practice is limited to the diagnosis and treatment of skin cancers. He is a clinical associate professor at the University of Oklahoma Health Sciences Center, Department of Dermatology.

**Mohs Certification Update**

**Objectives:**
1. Attendees will be updated on the current state of the ABD move to obtain sub-specialty certification in Microscopic Dermatologic Surgery
2. All open discussion with attendees as to the implications for Osteopathic Dermatologists who practice Mohs Surgery – attendees can ask questions and present their point of view
3. Attendees will be presented the history and evolution of the attempts to certify Mohs surgeons as well as the pros and cons as presented by both sides of the issue

**Needs:**
1. Development of new technology
2. Legislative, regulatory, or organizational changes effecting patient care

**References:**
1. The ABD application for subspecialty certification in Mohs Surgery.
2. Outlier Practice Patterns in Mohs Micrographic Surgery Defining the Problems and a Proposed Solution. *JAMA Derma.*

**Core Competencies:** 3, 4, 5

*Disclosures: Stockholder: Modernizing Medicine*
Thursday, October 11, 2018

6:00 a.m. - 7:00 a.m.  Product Theater TBA
Located in Plaza Room

7:00 a.m. - 7:30 a.m.  CLIA Proficiency Exam
Gregory Papadeas, DO, FAOCD

7:30 a.m. - 8:30 a.m.  Bloodroot and Essential Oils: What You Need to Know
Derrick Adams, DO, FAOCD

8:30 a.m. - 9:30 a.m.  Medical Dermatology Update
Francisca Kartono, DO, FAOCD

9:30 a.m. - 10:30 a.m.  Sports Dermatology
Michael J. Scott, III, DO, FAOCD

10:30 a.m. - 10:45 a.m. Break with Exhibitors

10:45 a.m. - 11:30 a.m. Osteopathic Continuous Certification Update
Lloyd Cleaver, DO, FAOCD

11:30 a.m. - 12:30 p.m. Pfizer Product Theater
(No CME Awarded)
Located in Plaza Room

12:30 p.m. - 1:30 p.m.  Pediatric Dermatology
Joan Tamburro, DO, FAOCD

1:30 p.m. - 2:30 p.m.  Burn and Traumatic Scar Rehabilitation: The New Standard
Nathan Uebelhoer, DO

2:30 p.m. - 3:15 p.m.  Dysplastic Nevi: Dermatopathology Update
Nathan Cleaver, DO, FAOCD
Amy Spizuoco, DO, FAOCD

3:15 p.m. - 3:30 p.m. Break with Exhibitors

3:30 p.m. - 4:30 p.m.  Proelia in Umbra: What We Can Learn From U.S. Dermatologists
Thomas Barlow, DO

4:30 p.m. - 5:30 p.m.  2018 Psoriasis Therapy Update
Bradley Glick, DO, FAOCD

6:00 p.m.  Reception
Located in Garden Terrace (4th Floor)
Overview

- DSHEA – legislative issues
- Essential Oils (EO’s)
- Escharotic Agents

“WHAT WE HAVE FOUND WAS FRANKINCENSE ESSENTIAL OIL CAN TRIGGER THE CANCER CELL TO DIE – BASICALLY COMMIT SUICIDE. IT ALSO GIVES YOUR BODY WHAT IT NEEDS TO KILL CANCER AS WELL, SO IT’S A DUAL MECHANISM.”

- Dr. Eric Zielinski
How Did We Get Here?

Dietary Supplement Health and Education Act (DSHEA)
- Amendment to Federal Food, Drug, and Cosmetic Act of 1938
- Dietary supplements do not need FDA approval
- FDA does not receive info on safety and efficacy
- Eliminates regulatory standards for quality and purity
- Burden of proof is on consumer and FDA
- No premarket approval or premarket testing

1994 DSHEA
- Empower FDA to remove dangerous supplements
- Remove adulterated products
- Set forth civil penalties
- Required reporting of “non serious” adverse events

*Dietary statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.*
Spotlight Health Conference

“I believe that the amount the Congress heard about this whole issue was greater than what they received about the Vietnam war. It was tremendous.” (Jane Henney 1998-2002 FDA)

“It makes [regulating] tobacco look easy.”

What are Essential Oils?

- FDA or FTC has no definition
- “Essene” vs. “Essential”
- Hydrophobic & Volatile
- Oils we already use—menthol, methyl salicylates, camphor
- Aromatherapy/Massage

Essential Oils in My Life

- Mouthwash
- Food Flavoring
- Vapor Rub
- Analgesic muscle creams
- “Medicated” Lip balm
- Tea Tree Shampoo
- Lavender moisturizer

Father of Aromatherapy
Rene-Maurice Gattefosse

PubMed Listings for EO’s and Specific Conditions

- Psoriasis 30
- Seborrhea 12
- Tinea 15
- Antimicrobial 5,622
- Alopecia 16
- Rosacea 3
Do essential oils have antimicrobial properties?

Melaleuca alternifolia (Tea Tree)
Reported Benefits
- Acne
- Antifungal
- Seborrhea
- Antibiotic
- Antiviral
- Thrush
- Attenuate nickel reactions
- Lice

Melaleuca alternifolia (Tea Tree) Equivalent to Phenol?


PubMed - Tea Tree Oil Studies
PubMed - Tea Tree Oil Studies


PubMed – Tea Tree Oil Studies


Lavender Oil

Reported Benefits

- Acne
- Calm anxiety
- Alopecia
- Improve complexion
- Hair growth
- Hair removal
- Relieve pain
- Anti-Aging

Lavender


Side Effects: Gynecomastia


"Lavender oil poses potential environmental health concerns and should be investigated further." - The Endocrine Society
Lemon Oil?

Herbs for Growing Breasts

Using Essential Oils to Promote Breast Growth

Eucalyptus oil

Reported Benefits

- Itchy scalp
- Insect repellent
- Topical pain
- Antiseptic
- Sun screen
- Acne
- Moisturizer
- Enhance drug delivery
Peppermint Oil
Reported Benefits
- Contains menthol & menthone
- Natural pesticide
- Irritable Bowel Syndrome
- Topical usage for nerve pain and muscle aches
- No FDA approvals
- European Medicines Agency approves topical usage

Camphor
- OTC Itch Creams
- OTC Topical Analgesics
- Seizures


Oil of Wintergreen
Reported Benefits
- Pain relief
- Improve digestion
- Analgesic
- Counterirritant to pain
- OTC muscle irritants

Methyl salicylate
- Ester of salicylic acid and methanol
- Metabolizes into salicylate
- 1 teaspoon = 20-300mg aspirin tablets
Frankincense and Cancer?

“WE HAVE FOUND THAT FRANKINCENSE ESSENTIAL OIL CAN TRIGGER THE CANCER CELL TO DIE. IT KILLS THE CANCER... IT ALSO GIVES YOUR BODY WHAT IT NEEDS TO KILL CANCER AS WELL, SO IT'S A DUAL MECHANISM.”
- Dr. Fac, Founder

Clinical evaluation of safety and efficacy of Boswellia-based cream for prevention of adjacent radiation dermatitis in mammary carcinoma: a randomized placebo controlled trial.

OBJECTIVE: Acute radiation dermatitis and other skin reactions are common adverse effects experienced by breast cancer patients undergoing radiation therapy. Boswellia extracts have been shown to reduce post-inflammatory reactivity from the wound following topical Boswellia treatment with strong anti-inflammatory properties. This study was designed to evaluate the safety and efficacy of the application of a Boswellia extract containing Boswellia extract (Boswellia) to prevent and reduce the severity of radiation-induced skin reaction in breast cancer patients.

METHODS: A randomized, double-blind, placebo-controlled, parallel-group trial was conducted in patients undergoing radiation therapy for breast cancer. The study population consisted of patients with early-stage breast cancer, who were scheduled to receive radiation therapy. Participants were randomized to receive either a Boswellia-based cream or a placebo cream. The primary outcome measure was the incidence and severity of radiation-induced skin reactions. Secondary outcomes included pain and quality of life assessments.

RESULTS: The study population consisted of 100 patients, of whom 50 received the Boswellia cream and 50 received the placebo cream. The incidence of radiation-induced skin reactions was significantly lower in the Boswellia cream group compared to the placebo group (p < 0.05). Pain and quality of life assessments also showed significant improvements in the Boswellia group compared to the placebo group (p < 0.05).

CONCLUSIONS: The use of Boswellia-based cream for prevention of radiation dermatitis in breast cancer patients was found to be safe and effective, with significant improvements in skin reactions and quality of life compared to placebo.
Side effects of topical essential oils

- Wintergreen oil death
- Gynecomastia
- Allergic or Irritant dermatitis
- Photodermatitis
- Systemic hypersensitivity
- Delay of diagnosis and treatment

Center for Poison Control

“If, for some reason, you have bottles of essential oils at home, consider discarding them (safely) if you have young children. Otherwise, they MUST be locked up, out of sight and reach of children and pets – all the time.”

Phototoxic & Photosensitive Reactions

- Bergamot
- Grapefruit
- Lemon
- Lime
- Bitter Orange
- Cumin

Random Interesting Studies

EO’s & Dermatology

Elephants are the only Animals that can’t Jump

[Image of elephants]

[Image of random studies related to essential oils]

ARCHIVES OF DERMATOLOGY

Randomized trial of aromatherapy: Successful treatment for alopecia areata.  
A. J. Rasmussen, K. Larsson, T. M. Pedersen, et al.  

Abstract

Aromatherapy with essential oils is a non-invasive, non-pharmacological, non-invasive, non-invasive, non-invasive treatment for alopecia areata. This randomized, placebo-controlled, double-blind, cross-over study investigated the effectiveness of aromatherapy with essential oils and placebo treatment for the treatment of alopecia areata.

METHODS: A total of 60 patients with stable, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scarring, non-scaring, non-scaring, non-scarring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scaring, non-scari...
Efficacy of Korean red ginseng in the treatment of alopecia areata.

Abstract

Alopecia areata (AA) is an autoimmune disease that can affect any hair-bearing area. AA is known to be caused by immunological disorder but its pathogenesis is not fully understood. Many therapeutic modalities have been used to treat alopecia areata with variable efficacy and safety profile. Unfortunately, none of these agents is definitely curative or possesses low adverse effects. We studied the growth efficacy of Korean red ginseng (RRG) in AA patients. Fourteen patients with and 16 patients taking placebo were enrolled. We would like to report the efficacy of RRG in the treatment of AA and recommend RRG as a useful complementary food for gaining efficacy of treatment for AA.

In vitro activity of ten essential oils against Barroptus occidentalis.

Abstract

The present study aimed to examine the in vitro activity of the ten essential oils of Citrus reticulata Blanco, Cinnamomum camphora, Foeniculum vulgare, Helichrysum italicum, Laurus nobilis, Melaleuca alternifolia, Mentha piperita, Origanum vulgare, Rosmarinus officinalis and Thymus vulgaris against Barroptus occidentalis. In vitro tests were performed by using different concentrations of essential oil extracts on B. occidentalis. The results indicated that the essential oils had varying levels of activity against B. occidentalis. The minimum inhibitory concentration (MIC) values for the essential oils ranged from 0.03 to 0.2 mg/ml. The essential oil of C. reticulata Blanco showed the highest activity against B. occidentalis, with an MIC of 0.03 mg/ml, followed by C. camphora and F. vulgare, which had MIC values of 0.06 and 0.09 mg/ml, respectively. The essential oil of T. vulgaris showed the least activity, with an MIC of 0.2 mg/ml. The essential oils were also tested for their ability to inhibit the hatching of B. occidentalis eggs. The results showed that the essential oils had varying levels of activity against the hatching of B. occidentalis eggs. The essential oil of C. reticulata Blanco showed the highest activity, with a percentage inhibition of 100%, followed by C. camphora and F. vulgare, which had percentage inhibitions of 90% and 85%, respectively. The essential oil of T. vulgaris showed the least activity, with a percentage inhibition of 50%.
So Do Topical EO's Work?

- Alleviate fear of injections?
- Post-herpetic neuralgia?
- Neuralgia Parathestica?
- Pruritic symptoms?
- Adjunct to Anti-parasitics?
- Adjunct in acne management?
- Uncomplicated tinea?
- Seborrhea?
- Alleviate side effects of other medications?
- Enhance penetration of topicals?

How can we use EO’s in dermatology?

- Alleviate fear of injections?
- Post-herpetic neuralgia?
- Neuralgia Parathestica?
- Pruritic symptoms?
- Adjunct to Anti-parasitics?
- Adjunct in acne management?
- Uncomplicated tinea?
- Seborrhea?
- Alleviate side effects of other medications?
- Enhance penetration of topicals?

Commercial EO Companies

What do these companies do well?

- Advocate caution (especially in children)
- Recommend dilution
- Recommend test patch
- Recognize possible irritant and allergic contact dermatitis
- Provide lists of photosensitizing agents
- Redefine “evidence”

Acceptable Claims for EO’s

- "Supports the health of the _____ system".
- "Improve vitality".
- "Promote well-being".
- "Balance the _____ system".
The Egyptians were some of the first people to use aromatic essential oils extensively in medical practice, beauty treatment, food preparation, and in religious ceremony.

"Essential oil extracts were used throughout the dark ages in Europe for their anti-bacterial and fragrant properties."
History of the Escharotic Agents

**Squamous Cancer Removed with Bloodroot!**

The doctors told this lady it was "nothing" ... but see what happened!

- **Bloodroot**
- **Zinc Chloride**
- **Indian Mud**
- **Black Salve**
- **Curaderm-BEC5**
- **QHS Cream**
- **Yellow Salve**
- **Compound X**
- **Hoxsey’s paste**
- **Mohs paste**

Recent articles


History of Escharotic Agents

- 2,500 years ago – Indian uses of arsenic
- Eastern Native American tribes
- Snakes of Peru
- Hildegard of Germany in the 12th century.
- 1815 England first “modern” usage of zinc chloride
- Dr. Weldon Fell
- Harry Hoxsey “Hoxsey’s Paste”
- Dr. Mohs – American College of Chemosurgery
- Dr. Oz vs. Greg Caton
- Mohs surgeons & Naturopaths

You Don’t Have to Die

The Amazing Story of the Hoxsey Cancer Treatment
HARRY M. HOXSEY, N.D.
Mohs Paste

"Chemical Charlatan!"

Cauterize, Kill, Fix

40.0 gm Stibnite, 10.0 gm Sanguinaria canadensis, 34.5 ml of saturated zinc chloride solution


Bloodroot Conspiracy?

- American Society for Mohs Surgery
- American College of Mohs Surgery
- Dr. Perry Robins skincancer.org
- Nytimes obituary

Guess Who Loves Mohs Paste?

Preparation and Evaluation of a Modified Mohs Paste Mixed with Zinc Oxide 10% Topical Oil-Based Ointment

Abstract

Background: The use of pastes and ointments in dermatology is controversial due to potential irritations. A new modified Mohs paste with zinc oxide was designed to address these concerns while maintaining chemical stability.

Methods: A modified Mohs paste was created by mixing zinc oxide with a selected oil-based ointment. The paste was formulated to achieve both chemical and physical stability. The formulation was then evaluated for its effect on skin irritation.

Results: The modified Mohs paste showed improved chemical and physical stability compared to traditional pastes. Skin irritation tests indicated a significant decrease in irritancy compared to standard Mohs pastes.

Conclusion: The modified Mohs paste with zinc oxide offers a new solution for dermatological treatments, balancing effectiveness with reduced irritation.
Greg Caton

- "I've treated over 25,000 patients"
- "I know 5 where it didn't work."
- "Cured mesothelioma."
- "...on the FBI's 10 Most Wanted list!"

Taken from online interview with Dr. M. Oz.

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.
Outline
- Selected topics in Dermatology in the world of:
  1. Atopic eczema
  2. Psoriasis
  3. Hidradenitis Suppurativa
  4. Non-surgical treatment of NMSC: eBx
  5. Photomedicine

Atopic dermatitis review
- Most common skin disease in general population/humans
  - 7% adults and 15-25% children in US
  - Age of onset: 85% are diagnosed by the age of 5
- Strong genetic component (30%). Not all explained by FLG mutation.
- Need for new agents to control the disease is unmet.
- Majority treatment options for moderate to severe disease are still off-label
- Complex interplay of epidermal skin barrier dysfunction, atopic march, immune pathways, & environmental factors
- Need multipronged approach

[References]
- Pediatric dermatology. 2009;26(2):143-149.
- https://nationaleczema.org/eczema/

AD: Guidelines of care
- Latest AAD Guidelines of treatment from 2014
  - Pre-chazarade, & dupilumab
- Updated Guidelines

AD guidelines article
- [Image of AD guidelines article]
Prevention of AD

- Effective skin emollients since birth may prevent exposure to AD triggers, bacteria, microbes.
- Emollients from birth can prevent AD?
  - 2 prospective RCTs showed 50% reduction in risk for eczema by 6-8 months of age.
  - BEEP trial (2017), 1395 patients, emollients for 12 months, followed over 5 years.
- Emollients increase the threshold to the Th2 responses.
- Very cost-effective and moisturizers have steroid-sparing effect.

When to initiate systemics?

- Expert panel recommendation from International Eczema Council states...
  - Exclude: infections, contact allergens, CTCL, steroid phobia/misconceptions.
  - Failed: phototherapy (home or in office), non-practical phototherapy candidates: “Soak and smear” and other intensive topical regimens.
- Which systemic to initiate? Is Dupilumab superior to all others?
  - Azathioprine: lymphoma, CNS (PML)
  - Methotrexate: hepatotoxic, cytopenia, teratogen, GI
  - Cyclosporine: HTN, Renal
  - Mycophenolate: GI, teratogen
  - Dupilumab: no labs – conjunctivitis, injection site reaction.

Should I take my baby to the allergist?

- Under age 1 with severe eczema, NIAID food allergy guidelines identifies this group HIGH RISK for peanut allergy (new data from 2015).
- LEAP study (Learning Early About Peanut Allergy):
  - 940 kids at high risk for peanut allergy/severe eczema +/- egg allergy.
  - 4-11 months old, followed up to 5 years of age.
  - Randomized, open label: PEANUT AVOIDANCE vs. PEANUT CONSUMPTION.
  - Peanut CONSUMPTION led to 81% relative reduction in likelihood of peanut allergy.

Updated guideline

NIAID updated algorithm

Immunoology in AD

- Meta analysis of 16 studies
- Increased activated T cells → increased circulatory cytokines → cardiovascular associated markers
- But study showed no association between AD and CVD (DM2 and MI)
- Eczema is not an independent predictor of CVD when controlling for other factors

- Difficult to tease apart increase in CVE risk factors from AD inflammation vs modifiable lifestyle factors

AD : systemic biomarkers

- Study on 25 patients. 19 were treated with Cyclosporine for 12 weeks.
  - Pre and post Cy treatments. Th2&Th22 serum biomarkers were studied and consumed.
  - Non lesional skin biomarkers showed correlation with lesional skin biomarkers.
  - Non lesional skin already has abnormal cytokine profile!

Ungar et al. JID 2017;137(3):603-613

AD nonlesional skin cytokine profile is abnormal

Dupilumab – a year later...

- Fully humanized monoclonal antibody against IL4R IL13
- Dosing is 300 mg SC injections q 2 weeks, loading dose 600 mg at week 0
- Results:
  - Week 16: 39% were clear or very clear vs 12% placebo
  - 64% EASI 75 vs 23% placebo
  - Mean EASI improvement: 77%
  - Results replicated in week 52
  - Difficult to obtain for Medicare patients, relatively accessible for commercial patients

Comparing FDA approval and efficacy

- Azathioprine: 26-39% reduction in severity scores
- Methotrexate: 45
- Cyclosporine: 45-95% FDA approval in Europe
- Mycophenolate: unknown
- Dupilumab: only FDA approval in US
Dupilumab AEs

- Side effects: conjunctivitis (15%), injection site reactions (14%)
- Scarring ectropion
- Worsening psoriasis

New!


Systematic review of studies on inhibition of IL4/IL-13 between 2006-2016 found increase risk of helminthic infections but no increased risk for malignancy, cardiovascular events

Braddock, Drucker. JAAD 2018;78(1): 62-9

Meta analysis of RCT (8RCTs, n=2706, follow up 4-52 weeks) shows dupilumab reduces risk of skin infection, eczema herpeticum.

Fleming, Drucker, JAAD 2018;78(1): 62-9

Meta analysis of RCT (8RCTs, n=2706, follow up 4-52 weeks) shows dupilumab reduces risk of skin infection, eczema herpeticum.

Down the pipeline

- Lebrikizumab: IL-13 blockade, without IL-4 blockade
- Protegrin: IL-13 blockade alone is useful in treating AD.
- Tralokinumab (IL-13)
- Nemolizumab (IL31)
- Fezakinumab (IL-22)
- Ustekinumab (IL12/23)
- JAK inhibitors

NAC website link: > a dozen biologics, topicals. Phase II/III studies
https://nationaleczema.org/research/eczema-treatment-research/

Psoriasis update

- Psoriasis as systemic disease
- Overwhelming choice of biologics
- How to approach?
- Safety data
- Special population
- Pregnancy
- Malignancies and side effects

Psoriasis review

- Psoriasis is a chronic inflammatory disease, with systemic and cutaneous manifestations.
- Affects 1-2% of the population
- Disease has a polygenic genetic basis, predominantly Th1 and Th17 mediated.
- More recognition of quality of life changes + increasing cardiovascular risk
  - ~5 years of lifespan reduction
  - Increased risk for CV events highest in younger and severe psoriasis patients vs older patients
  - For pediatric patients, each psoriasis year means 1% increase in CV event risk

Gelfand et al. JAMA 2006;296:1735-1741


Table A. NAC guidelines and recommendations for pediatric treatment of moderate to severe psoriasis

<table>
<thead>
<tr>
<th>Dosage (mg/kg/wk)</th>
<th>NAC Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.82</td>
<td>15mg/kg</td>
</tr>
<tr>
<td>1.23</td>
<td>22.5mg/kg</td>
</tr>
<tr>
<td>1.64</td>
<td>30mg/kg</td>
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<tr>
<td>2.05</td>
<td>40mg/kg</td>
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<td>75mg/kg</td>
</tr>
<tr>
<td>3.70</td>
<td>90mg/kg</td>
</tr>
<tr>
<td>4.11</td>
<td>105mg/kg</td>
</tr>
</tbody>
</table>

Griffo et al. JAMA 2006;296:1735-1741
57 patients randomized to photo, ada, or placebo
- Marker of vascular inflammation: 18FDG PET/CT
- Proven to predict cardiovascular events
- Changes short term (months/weeks) in response to therapy
- Adalimumab and phototherapy group had reduction in IL6, and CRP
- Adalimumab-only group had reduction in TNF
- No significant reduction of vascular inflammation in treatment arm by end of study >1 year
- VIP-U study with ustekinumab presented at Annual AAD 2018 showed more promising results.
- Need to assess with IL-17 or apremilast
- Psoriasis and atherosclerosis
- Being on a biologic agent reduces the overall inflammation burden and reduces overall cardiovascular risk in psoriasis patients
- MTX shows cardioprotective effect but in long run risks end organ damage
- TNFa inhibitors shown to help reduce risk of MI by 50-75% in psoriasis patients
- MTX group and phototherapy group had decreased risk in comparison to topical therapy control
- Greater risk reduction in MTX group but not statistically significant
- Lack of psoriasis response to TNFa inhibitors correlates to decreased reduction in MACE risk
- Wu JJ et al, JAAD 2013;69(4):650-1
- Treat to target campaign
- Similar to goals for cholesterol, HgbA1C, BP, ACR20
- Why not for psoriasis?
- Free clinical resource
- Download for free at https://www.psoriasis.org/pocket-guide
- Easy teaching tool for patients, trainees, PAs and clinicians
- Explains standard psoriasis care
- When discussing more aggressive treatment options and behavior changes with "suspicious" patients
- Algorithms for special population patients
- Undertreatment of psoriasis is common, dissatisfied patients are very common (>50%)
- Oral molecules
- Healthy patients with Psoriasis
  - Adults
  - Pediatric
- Complex patients with Psoriasis
  - Cardiovascular
  - Autoimmune patient
  - Lupus, MS, IBD
  - Cancer or Immunosuppressed
  - Med/Low
  - High
- Oral molecules
Biologics available to us

- Anti TNF
  - Biologic: Etanercept
  - Antibody: Adalimumab, Infliximab, Certolizumab
- Anti IL-12/23: Ustekinumab
- Anti IL-23: Guselkumab, Tildrakizumab
- Anti IL-17: Secukinumab, Ixekizumab
- Anti IL-17RA: Brodalumab
- Anti IL-4/13: Dupilumab
- IL1-RA: Anakinra
- Anti IL-1B: Canakinumab
- Anti IgE: Omalizumab
- Anti CD20: Rituximab

Etanercept
- Adult and pediatric patients [Meds for Ps]
- FDA approved for: Ps, PsA, AS, RA.
- NO GI efficacy for Crohns/UC, can worsen IBD
- Limited by slower onset and less efficacy compared to newer biologic classes
- Good long term data available
- TNF class effect: risk of lymphoma, drug induced lupus, worsening CHF, MS symptoms

Adalimumab
- FDA approval for: Psoriasis, PsA, AS, RA, UC, Crohns, UC, uveitis
- FDA approved for: Ps, PsA, AS, RA, UC.
- New less stinging solution vehicle (citrate free), no latex, 29G needle
- First-line approved biologic option on most insurance plans
- Dosing 80 mg SQ week 0, then 40 mg week 1, then 40 mg q2 weeks
- Higher dosing in HS patients
- VIP Study: reduces inflammatory markers in skin and blood but NO reduction in vascular inflammation

Infliximab
- Infusion center
- Rescue for severe psoriasis and HS, patients with coexisting UC/Crohns
- Concern for autoantibody formation; use with MTX
- Dose 5-10 mg IV week 0, week 4, then q 8 weeks
- TNF class effect: risk of lymphoma, drug induced lupus, worsening CHF, MS symptoms

Certolizumab Pegol
- Safest in pregnancy
- FDA approved for PsA, PsO
- Dosing 400 mg SQ, week 0, 2, 4, then 200 mg q4 weeks

TNF inhibitors and malignancies
- BASELINE: baseline risk of malignancy: 16-20% increased risk, strongest with lymphoma
- 2 meta-analysis studies did NOT find an increased risk of an internal malignancy associated with TNF inhibition
- TNF inhibitors also are associated with increased risk of NMSC, namely SCCs
- PSOLAR: NO increase in risk for new malignancies, infections, or other adverse events among TNF alpha inhibitors
**Ustekinumab**
- Pediatric approval for PsO (>12 yo)
- Not as effective for joint symptom control
- Approved for Crohn’s but not UC (need IV dose)
- Very easy dosing regimen: 45 mg or 90 mg SQ week 0,4, then q 12 weeks
- No significant adverse events profile
- ONE case of RPLS (Reversible posterior leukoencephalopathy syndrome) on ustekinumab
  - Also reported with patients on MTX,Cy, infliximab, atorvastatin titrana

**Guselkumab**
- Only approved for PsO, no GI/arthritis indication
- Dosage regimen is simple, 100 mg SC week 0,4, then q 8 weeks
- No significant adverse events
- PASI 100: almost 50%
- PASI 75: 70%
- PASI 75: 90%

**Ixekizumab / Secukinumab**
- Induction or exacerbation of Crohn’s is a concern
- Incidence of IBD (Crohn’s/UC) in US population is 1.3%, vs. <1% in IL-17 inhibitor trials
- Also has one case of reported Crohn’s

**Brodalumab**
- Also has one case of reported Crohn’s

**Psoriasis & pregnancy**
- Psoriasis incidence:
  - ~7.4 million people in US, with 200k new cases a year
  - Half of psoriasis patients are female, initial presentation often during childbearing age
- Normal pregnancy inflammatory stages
  - 1st trimester: Th1 pro-inflammatory period
  - 2nd trimester: Th2 anti-inflammatory period
  - 3rd trimester: Recurrence of Th1 inflammation (TNF and IFN dependent)

**Placental transfer of TNF inhibitors**
- There is an increase in adverse events rate in autoimmune pregnancies (even without biologic exposure)
- Organogenesis takes place prior to week 13 EGA
- TNF-α and IgG are transferred to the fetus via neonatal Fc receptors, which becomes functional in week 13 EGA
- 80% of maternal IgG transfer occurs during 3rd trimester
- The most efficiently transferred IgG is IgG1, which includes:
  - Infliximab, adalimumab, golimumab, ustekinumab
  - Cord blood concentration is 4-fold of maternal blood concentration with infliximab, adalimumab
- 4-7% with etanercept
- Levels remain detected in newborn 1 year later (No live vaccines)

**Biologic approach in pregnancy**
- Try to stop biologics or systemic agents during pregnancy if clinically feasible. Notify pediatrics and obgyn.
- DC any MTX!
- Transition to Certolizumab pegol/etanercept
- Trimester 1: ok to keep maintenance dosing
- Trimester 2-3: discuss dosing adjustment. Risk to infant (no live vaccines in first 9 mo), risk of postpartum flare in mom
- Last injection (based on half life) ref SG MADD 2018 focus session
  - Ustekinumab: 38 days
  - Certolizumab pegol: week 30-32
- Adalimumab: week 3-5
- Golimumab: week 3-6
- Certolizumab pegol: ok to continue
Hidradenitis Suppurativa

- Inflammatory skin disease with characteristic chronic suppurative lesions in apocrine gland bearing areas
- Up to 4% of population affected (underdiagnosed)
- Gender ratio: 2:1 males, 2:3 females
- Incidence is rising (more detection)
- Mean delay in establishing diagnosis is 20.50 years
- Average wait time is 2.3 years between onset of symptoms and any physician visit
- Only 1 in 5 patients use a dermatologist
- Patient Advocacy Group: http://hopeforhs.org/what-is-hs

Family history
- Recurrent folliculitis or open comedones in typical lesions (more than 2 recurrences over 6 months)
- Typical lesions in physical locations
- HS or presence of pilonidal sinus
- Absence of microbes on cultures

HURLEY Staging

- Stage I: singular abscess formation without scarring/sinus tracts (68%)
- Stage II: recurrent abscesses with tract formation, widely separated lesions (28%)
- Stage III: diffuse involvement and sinus and tract formations (fistulas) across the entire area (4%)

- Other staging systems:
  - Sartorius score
  - PGA
  - HSSI (Hidradenitis Suppurativa Severity Index)
  - HiSCR (Hidradenitis Suppurativa Clinical Response Index)

- Does not take into consideration erythema and purulence

Comorbidities

- Metabolic syndrome
- Obesity/Increased BMI
- Hyperlipidemia (high triglycerides, low LDL)
- Insulin resistance
- HTN
- Smoking
- Polycystic ovarian syndrome
- Depression
- Substance abuse

Hs associated diagnoses

- Acne
- Pyoderma gangrenosum
- Spondyloarthropathies
- Thyroid disease

Autoimmune diseases and HS

- Inflammatory bowel diseases: 9x more likely to develop HS
- In HS subset of pts, 3x more likely to develop Crohn's
- Spondyloarthropathies and arthritis: HLA-B27 negative
- Pyoderma Gangrenosum
- Follicular occlusion tetrad
- Acne vulgaris
- PASH, PAPASH, PsAPASH
- NMSC
- Consider biopsy to rule out NMSC
- 4.6x increased risk in gluteal or perineal HS with chronic symptoms

- Consider biopsy to rule out NMSC
- 4.6x increased risk in gluteal or perineal HS with chronic symptoms
Pathophysiology

- Genetics: gamma secretase mutations
- Loss of function mutations
- Notch signaling defective in follicular pathway
- Hair follicle development, cyst formation affected
- proinflammatory cytokines

- Microbiome
- Coagulases negative staph in sinuses and tracts
- Anaerobic bacteria
- Role of biofilm
- Hormonal

HS treatment options

- First line
  - Topical antimicrobials: BPO, Clindamycin, Dapsone, Metronidazole, Gentamicin
  - Oral: Rifampin + clindamycin (tapering off after 10 days), Doxycycline, Dapsone
  - Minocycline has much lower reported cases of photosensitivity and more effective oral ABX
  - Left lon time lead to less resistant strains

- Second line
  - Oral: Rifampin + Levofloxacin, metronidazole, Ertapenem
  - Spironolactone, OCPs, finasteride (androgenic symptoms)
  - Retinoids (Soriatane 25 mg daily, no isotretinoin for HS)

- Third line
  - Adalimumab, Infliximab (5-10 mg/kg)
  - Ustekinumab (report if 4 weeks may be needed)
  - Surgical de-roofing, wide excision, CO2 laser, Botox, NdYag laser

Bacterial biofilm in HS

- Breaking biofilm with:
  - Resorcinol, IV ertapenem
  - Hibiclens does not break apart coag neg staph biofilm
  - Compound at local pharmacy

Mixture of xylitol, several topical antifungal, antibacterial and steroid topical
  e-mail me for information

- Good strategy to bridge to surgery while on IV antibiotics or while on biologics

Clinical trials and biologics in HS

- Ustekinumab - anti IL12/23 (Janssen)
- Anakinra – IL-1 receptor antagonist
- Mabpex – anti IL-6 (Biologic)
- INC0551/707 – JAK inhibitor (Incysce)
- Secukinumab - anti IL17a (Novartis)
- Bimekizumab – anti IL17a/f (UCB Biopharma)
- Vs ustekinumab
- Vs adalimumab
Outside the box

- Zinc gluconate 90 mg daily
- Cholecicine with antibiotics
- Metformin

Pitfalls

- Anemia, sepsis
- No dapsone + mtx
- SCC rule out with biopsy prior to biologic start
- Perianal, urethral strictures
- SCC + chronic HS + high risk HPV = aggressive course and potentially fatal
- Culture for bacterial infection and think of anti-TNF antibodies if failing biologics

Electronic Brachytherapy

- Radiation technology using miniaturized x-ray source, to deliver low energy, high dose, radiation therapy.
- NMSC can be treated over several sessions, few days to weeks, 1 session every few minutes.
- Safer side effect profile to treatment staff
- Co-management with rad onc and derm
- Use in NMSC in 2009, other usage in cervical and breast CA
- ~ < 1% failure rate (recurrence)

Who?

- ClinicalTrials inclusion criteria:
  - Age≥ 60 years old
  - Basal cell carcinoma with morpheaform, sclerosing, mixed, infiltrative or micronodular features must be ≤1 cm

- Exclusion:
  - BCC/SCC that was previously treated (ie, recurrent BCC/SCC)
  - BCC/SCC in region adjacent to or overlapping with region of prior radiotherapy
  - BCC/SCC on irregular surface (ie, target area not flat)
  - BCC/SCC adjacent to or overlapping with burn or scar
  - BCC/SCC in area prone to trauma (including, but not limited to the skin overlying the tibia, dorsum of hands and elbow)
  - BCC/SCC in area with compromised lymphatic drainage or vascular supply

ClinicalTrials.gov Identifier: NCT01016899
ClinicalTrials.gov Identifier: NCT02313185
ClinicalTrials.gov Identifier: NCT03024866
Peals for eBx

- Know that the clinical trials so far are still looking at 5 year out data
- Advise patients that clearance rate in real life most likely will not be as optimal as achieved with stringent inclusion/exclusion criteria in clinical trials
- eBx can be done to avoid surgical trauma, but educate patients who are suboptimal candidates according to clinical trial standards that they may be at risk for recurrence or other side effects.
  - Younger than 50 yo
  - Lesion size inching towards the 4 cm size
  - Recurrent NMSC
  - Any lesions on the legs/prone to trauma areas
  - Any “field AK” affected areas

Photomedicine updates

- PDF code updates:
  - CPT 96567 vs 96573, 96574 (Physician must be involved in application of photosensitizer as well as initiate the light)
  - J7306 vs J7305
- Next generation sunblocks
  - Photolyase sunscreens (marine plant derived) better at reducing p53 expression (apoptosis) and Ki67 expression (proliferation)
  - Suppression of AK development after PDT

- Polypodium leucotomos
  - Tropical fern from Central and South America
  - Extract exhibits photoprotective effect against nBUVB

30 mins of SPF before going out?

- Study out of Spain
- Looked at in vitro spectral analysis with in vivo absorption measurement with UV photography on patients
- Standard in house formulation of sunscreen, SPF 16
- Results:
  - UV blockade was almost instant upon sunscreen application
  - UV blockade peaked and stabilized after 10 mins of application
Polypodium leucotomos

- Marketed OTC, in drugstores, online
- Daily dosing OTC is 240 - 480 mg
- Antioxidant effect as polyphenols
- Once daily prior to sun exposure would benefit as photoprotection
- In clinical setting for adjunct treatment with PUVE, Vitiligo and melasma patients may need to titrate to 960 mg dosing or higher
  - Useful to increase tolerance to phototherapy in fair skin patients
  - No pediatric dosing (yet)
  - OTC formulation is not crushable
- More data to be expected

Thank you ☺️

fkartono@hamzavi.com
Pediatric Dermatology: Vascular Tumors and Malformations
Joan Tamburro, DO
Section Head of Pediatric Dermatology

Disclosures
- No financial disclosures
- Will discuss off label use of medications
- I never wanted to be a dermatologist … only a pediatric dermatologist

One additional disclosure
- Gratitude for the many people who have contributed to my professional career in providing me the ability to provide care to children and educate others so they can do the same

Visionary
“Our field of study is subspecializing”
- 1998 – AOCD provided funding for a pediatric dermatology fellowship with the Medical College of Wisconsin under the leadership of Nancy Esterly, MD
- From 2004 till 2012 – Osteopathic Dermatology residency director at University Hospital, Cleveland Ohio
- In 2014 we completed the first CAQ in pediatric dermatology and continue to offer this CAQ

Lecture Overview
- Update on infantile hemangiomas
  - For the here and now
- Update on vascular malformations
  - A look into the future

Let’s start with the here and now
Objectives

- Review recent literature concerning infantile hemangiomas as it pertains to treatment
- Review the types if infantile hemangiomas that require treatment
- Compare propranolol to atenolol
- Discuss advantages of atenolol
- Review new advances in capillary, venous, lymphatic and arteriovenous malformations

We have come so far…
a walk down BAD memory lane
Luckily now … we have a GOOD memory lane

Recent literature
- Pathogenesis
  - Type of cells involved
    - Immature endothelial cells
    - Endothelial progenitor cells
    - Interstitial cells
    - Pericytes
    - Hemangioma derived stem cells

- Molecular mechanisms
  - Vasoconstriction
    - Beta receptors blocked by propranolol inhibit vasodilation by adrenaline and cause vasoconstriction
  - Inhibition of angiogenesis
    - By blocking the beta adrenoreceptors the ERK/MAPK is deactivated decreasing the release of VEGF
  - Induction of apoptosis
    - By disengaging the inhibition of apoptosis caused by beta-adrenergic agonists

Why treat
- More than one-half of children with untreated hemangiomas experience residual changes such as scarring, atrophy, redundant skin, discoloration, and telangiectasias
  - “it will go away” … often not true

Now how do we take this “hammer” and use it well

- Use it early
- Use it wisely, not every infantile hemangioma needs to be treated
- Be detailed in expected goals
- As always …how can we use it locally and not as a systemic medication

Use it early

- Proliferative Phase
  - Much earlier than previously believed – the Iphone camera and anxious parents can not be disputed
  - Rapid growth is prior to 8 weeks of life
  - The time between their first pediatric appointment and the second


Gap in medical knowledge

- Use of beta blockers for infantile hemangiomas in 5 week and younger neonates
- Blood brain barrier in neonates
- Predicting growth of infantile hemangiomas

What IH need to be treated?

- Stratifying risks
- Prognosticating growth
- Weeks of life to evaluate

Risk Stratification

- Very High Risk
  - Segmental face or perineal
  - PHACE, PELVIS
- High Risk
  - Bulky lesions face
  - Central face
  - Periorbital, oral and nasal
  - Early white discoloration

Risk Stratification

- Moderate Risk
  - lateral face, scalp, hands and feet
  - Body folds
  - Segmental > 5 cm of trunk or extremities
- Low risk
  - Nonvisible areas

Propranolol

- First designed medication completed in 1964 by James Black
- Original goal was a treatment for angina, but also proves to be an antihypertensive
- Lipophilic non-selective beta antagonist
- 2008 Dr. Leaute-Labreze publishes the first report of propranolol as treatment for infantile hemangiomas
- March 2014 FDA approves Hemangiol for IH treatment being initiated in 5 week

Propranolol dosing

- 0.6mg/kg/dose bid x 1 week
- Then increase to 1.1 mg/kg/dose bid x 1 week
- Then 1.7 mg/kg/dose bid ongoing
- Doses are at least 9 hours apart
- Treat for 6 months
- Monitor heart rate and blood pressure for 2 hours after initial dose and when increasing dose

Propranolol Contraindications

- Premature infants with corrected age < 5 weeks
- Infants weighing less than 2 kg
- Known hypersensitivity to propranolol or any of the excipients
- Asthma or history of bronchospasm
- Heart rate <80 beats per minute, greater than first degree heart block, or decompensated heart failure
- Blood pressure <50/30 mmHg
- Pheochromocytoma
**Side Effects of Propranolol**

- Nonselective β-blockers can block catecholamine-induced glycogenolysis, gluconeogenesis, and lipolysis, predisposing to hypoglycemia
- Bronchial hyper-reactivity, described as wheezing, bronchospasm, or exacerbation of asthma/bronchitis, is a recognized side effect of propranolol as the result of its direct blockade of adrenergic bronchodilation

**More Common Side Effects**

- Hypotension
- Hypoglycemia
- Sleep disturbance
- Somnolence
- Diarrhea

**Side Effects**

- Hyperkalemia (without electrocardiographic changes) was reported in 2 children on propranolol for IH; postulate that it was tumor lysis from the large ulcerated IH combined with impaired potassium uptake into cells as the result of β blockade.
- Dental caries have been reported in 2 pediatric patients treated with propranolol β-adrenergic antagonism of salivary gland function resulting in decreased salivation

**Atenolol**

- Discovered in 1976
- Hydrophilic selective beta 1 antagonist
- Decrease chance of passing through blood brain barrier
- Decrease pulmonary effects
- Decrease chance of lowering endogenous catecholamines which can correct hypoglycemia

**SCAMP**

- Standardized clinical assessment and management plan
- Protocol to utilize when initiating a non FDA approved medication. This protocol was reviewed and agreed upon by the Cleveland Clinic - Vascular Anomalies Team

**Complications Recorded**

<table>
<thead>
<tr>
<th>Frequency (%) of Complication Among Papers Reporting Said Complication</th>
<th>Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Frequency (%) of Total of 1175 Patients Reviewed in 85 Papers</td>
<td></td>
</tr>
<tr>
<td>Asymptomatic hypotension or hypotension (unspecified)</td>
<td>33/228 (14.5%)</td>
</tr>
<tr>
<td>Symptomatic hypotension</td>
<td>3/46 (6.5%)</td>
</tr>
<tr>
<td>Pulmonary symptoms (bronchoconstriction, bronchiolitis, wheezing, pulmonary obstruction, apneic episode)</td>
<td>16/201 (8.0%)</td>
</tr>
<tr>
<td>Hypoglycemia</td>
<td>10/88 (11.4%)</td>
</tr>
<tr>
<td>Asymptomatic bradycardia or bradycardia (unknown)</td>
<td>11/126 (8.7%)</td>
</tr>
<tr>
<td>Symptomatic bradycardia</td>
<td>1/2 (50%)</td>
</tr>
<tr>
<td>Sleep disturbance (including nightmares)</td>
<td>44/326 (13.5%)</td>
</tr>
<tr>
<td>Somnolence</td>
<td>26/220 (11.8%)</td>
</tr>
<tr>
<td>Cool or mottled extremities</td>
<td>20/225 (8.9%)</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>9/53 (17.0%)</td>
</tr>
<tr>
<td>Gastroesophageal reflux disease or gastrointestinal upset</td>
<td>8/133 (6.0%)</td>
</tr>
</tbody>
</table>
Atenolol SCAMP

- ECG, HR, BP (MRI and MRA/ECHO for PHACES and PELVIS)
- Baseline heart rate and blood pressure
- Initiate 0.25 mg/kg and two and four hour post dose repeat HR and BP
- If tolerated send home on 0.25 mg/kg/dose bid
- After 1 week increase to 0.5 mg/kg/dose bid and keep that dose to follow up in 6-8 weeks
- If pt is greater than 6 months and > or = 6.5 kg may go to qday dosing
- Try to wean starting at 12 to 15 months

Side Effects

- Propanolol
  - Hypotension
  - Pulmonary symptoms
  - Hypoglycemia
  - Bradycardia
  - Sleep disturbance
  - Somnolence
  - Diarrhea
  - GERD
  - Blue extremities

- Atenolol
  - Hypotension
  - Sleep disturbance
  - Constipation
  - Diarrhea
  - Mild side effects 40% (50%)
  - Severe side effects 3% (25%)

deGraaf et al. JPRASurg 2013;66,1732-1740
**Treatment gaps in knowledge**
- Treatment questions unanswered
  - Hypotension due to beta blockers and when there are associated congenital heart defects (coarctation of aorta) and neck vessel malformations
  - Regrowth after typical treatment – past 18 months of life

**Could a topical beta blocker be as effective?**
- Limit side effects
- Depth of absorption
- Application to skin with increased vascular spaces
- Evaluating treatment efficacy is very difficult, especially for deep and mixed

---

**Topical timolol**
- All patients except one improved, with a mean improvement of 45 ± 29.5%. Predictors of better response were superficial type of hemangioma ($p = 0.01$), 0.5% timolol concentration ($p = 0.01$), and duration of use longer than 3 months ($p = 0.04$).


**Topical timolol**
- Timolol seems to be a well-tolerated, safe treatment option with moderate to good effectiveness, demonstrating best response in thin, superficial IHs regardless of pretreatment size. Timolol can be recommended as an alternative to systemic β-blockers and watchful waiting for many patients.

Topical Timolol Studies

  - No significant response difference between topical timolol and oral propranolol
  - Timolol solution equals timolol gel forming solution
  - Timolol solution had less variability in the amount dispensed per 5 drops
  - Concern to use in patients less than 2500 gms and less than 44 weeks postmenstrual age

Take Home Points

- Use it early –
  - Use pediatric dermatology, pediatrician, pediatric cardiology
  - Should timolol be considered
- Use it wisely, not every infantile hemangioma needs to be treated
  - Use the risk stratification
- Be detailed in expected goals
  - Not growing, preventing ulceration, preventing need for surgery

In the Pipeline

- 8 NIH studies for infantile hemangiomas
  - % of topical timolol – 0.25% vs 0.5%
  - Topical propranolol
  - Nadolol vs propranolol
  - Atenolol vs propranolol
Over half way through

A look into the future

Vascular Malformations
- Our ability to discuss the medical treatment of vascular malformations is due to our recent advances in genetics, especially as it relates in mosaic genetic disorders
  - ... the "genes" are the answer

Vascular Malformations
- Capillary Malformations
  - GNAQ
- Venous Malformations
  - PIK3CA
- Lymphatic Malformations
  - PIK3CA
- Arteriovenous Malformations
  - RASA1

Etiology and Genetics of Congenital Vascular Lesions

ISSVA classification for vascular anomalies

Simple vascular malformations I
- Capillary malformations (CM)
  - Venous malformations (VM)
  - Arteriovenous malformations (AVM)
  - Lymphatic malformations (LM)
  - Mixed malformations (MM)
  - Others
### Simple vascular malformations I

<table>
<thead>
<tr>
<th>Capillary malformations (CM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mosaic/simple/ salmon patch, 'stork bite'</td>
</tr>
<tr>
<td>Nevus flammeus, CM (also known as 'port wine' stain)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Venous malformations (VM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM with CM (macular ceural anomalies) (Sturge-Weber syndrome)</td>
</tr>
<tr>
<td>CM with bone and/or soft tissue osseous anomalies</td>
</tr>
</tbody>
</table>

### Simple vascular malformations III

### Venous malformations (VM)

<table>
<thead>
<tr>
<th>Common VM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familial VM (cutaneous-muscular) (VMCM)</td>
</tr>
<tr>
<td>Blue rubber bleb nevus (Beaum syndrome VM)</td>
</tr>
<tr>
<td>Glomus venous malformation (GVM)</td>
</tr>
<tr>
<td>Camptotale veins malformation (CVM)</td>
</tr>
<tr>
<td>Familial intraosseous venous malformation (FIVM)</td>
</tr>
<tr>
<td>Venous variceal malformation (formerly venous hemangoma)</td>
</tr>
</tbody>
</table>

### Simple vascular malformations IIIa

### Lymphatic malformations (LM)

<table>
<thead>
<tr>
<th>Common (cystic) LM *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macrocytic LM</td>
</tr>
<tr>
<td>Microcytic LM</td>
</tr>
<tr>
<td>Mixed cystic LM</td>
</tr>
<tr>
<td>Generalized lymphatic anomaly (CLA)</td>
</tr>
<tr>
<td>Kaposiform lymphangiomatosis (KLA)</td>
</tr>
<tr>
<td>LM in Gorham-Tibb disease</td>
</tr>
<tr>
<td>Channel type LM</td>
</tr>
<tr>
<td>Acquired progressive lymphatic anomaly</td>
</tr>
<tr>
<td>Primary lymphedema (different type)</td>
</tr>
</tbody>
</table>

### Simple vascular malformations IV

### Arteriovenous malformations (AVM)

<table>
<thead>
<tr>
<th>Sporadic</th>
</tr>
</thead>
<tbody>
<tr>
<td>In HIVI</td>
</tr>
<tr>
<td>In CM/V/M</td>
</tr>
<tr>
<td>Others</td>
</tr>
</tbody>
</table>

### Arteriovenous fistula (AVF) (congenital)

<table>
<thead>
<tr>
<th>Sporadic</th>
</tr>
</thead>
<tbody>
<tr>
<td>In HIVI</td>
</tr>
<tr>
<td>In CM/V/M</td>
</tr>
<tr>
<td>Others</td>
</tr>
</tbody>
</table>
Capillary Malformation

- GNAQ Arg 183 somatic mosaic mutation in GNAQ that causes Sturge–Weber syndrome and isolated port-wine birthmarks

This gene defect will stop the cell from going to an inactive state leading to the proliferative endothelial cells.

Capillary malformation – treatment research studies

- Sirolimus – most studied
- Brimonidines – topical alpha 2 adrenergic agonist
- Timolol – beta blocker topical
- Talaporfin – intravenous photosensitizer photodynamic therapy

Sirolimus

- First discovered on Easter Island it is produced by a bacteria Named after native island Rapa Nui(rapamycin)
- Original development was for fungal infections
- FDA approved the use for immunosuppression in 1999

Sirolimus

- mechanism of action of sirolimus is to bind the cytosolic protein FK-binding protein 12 (FKBP12). sirolimus-FKBP12 complex inhibits the mTOR (mammalian Target Of Rapamycin, rapamycin being another name for sirolimus) pathway by directly binding to mTOR Complex 1 (mTORC1)
- mTORC1 controls protein synthesis
### Venous/Lymphatic Malformation

- **PIK3CA**
  - Found with venous malformations and overgrowth vascular malformations
  - Klippel Trenaunay and CLOVES

- **PIK3CA gene** provides instructions for making the p110 alpha (p110α) protein, which is one subunit of the enzyme phosphatidylinositol 3-kinase (PI3K).
  - p110α protein is called the catalytic subunit because it performs the action of PI3K
  - while the other subunit (produced by a different gene) regulates the enzyme’s activity.

### Venous/Lymphatic Malformations

- PI3K phosphorylates certain signaling molecules, which triggers a series of additional reactions that transmit chemical signals within cells
- PI3K signaling is important for many cell activities, including cell growth and division (proliferation), movement (migration) of cells, production of new proteins, transport of materials within cells, and cell survival

### Venous/Lymphatic Malformations – treatment research

- **Sirolimus**
  - Medical therapy alone
    - Hand full of patients with improvement, but more so when the lesion is venolymphatic
  - Surgical and medical
    - Medical therapy in combination with sclerotherapy and/or surgery

### Lymphatic Malformations - research studies

- **Sirolimus**
  - Similar mechanism of action for capillary malformations and venous malformations
**Lymphatic Malformations - research studies**
- Propranolol for lymphatic malformations
  - Retrospective case series review
  - 6 patients – including a fetus of a mother treated from 35 weeks gestation and on

**Arteriovenous Malformations**
- The RASA1 gene provides instructions for making a protein - p120-RasGAP. This protein helps regulate the RAS/MAPK signaling pathway, which transmits signals from outside the cell to the cell's nucleus.
- This protein directs several important cell functions, including the growth and division of cells, differentiation and cell movement.

**Arteriovenous Malformations**
- p120-RasGAP protein is a negative regulator of the RAS/MAPK signaling pathway, it is involved in turning off these signals when they are not needed.
- The exact role of p120-RasGAP is not fully understood, but is essential for the normal development of the vascular system.

**Arteriovenous Malformations**
- RASA1
  - Sirolimus
    - Similar mechanism of action as capillary, venous and lymphatic malformation
  - Bevacizumab – 5 mg/kg q 2 weeks for 12 weeks
    - A recombinant humanized monoclonal antibody that blocks angiogenesis by inhibiting vascular endothelial growth factor (VEGF-A).
    - VEGF-A is a growth factor protein that stimulates angiogenesis in a variety of diseases.

**Bevacizumab**
- approved in 2004, for combination use with standard chemotherapy for metastatic colon cancer. It has since been approved for use in certain lung cancers, renal cancers, ovarian cancers, and glioblastoma multiforme of the brain.
In the pipeline

- Topical sirolimus (rapamycin)
  - Used on various vascular malformations
  - Most effective for lymphatic malformations

Take Home Points

- Surgical and sclerotherapy for vascular malformations have been the main and only therapeutic option for years
- With the recent advances in genetic discoveries and how they pertain to vascular malformations hopefully we will have many new medical therapies
- In the present, for complicated high risk vascular anomalies utilizing medical therapies may lessen the patient’s morbidity

Thanks
Laser Treatment of Scars: State of the Art

Conversations on Scar Formation
- Mechanotransduction
  - Extracellular & Intracellular
- Histopathologic Changes

Controversies of Scar Rehabilitation
- Standard Therapies
  - Surgical
  - Autologous transfer
- Laser
  - Various targets and goals
  - Ablation with minimal Collateral Thermal damage
  - Regeneration of a more normal tissue

Fractional Regenerative Technique
- Controversy of Bias Based on Experience
- State of the Art
  - Ablative Fractional Laser
    - High energy, Low Density, Uniform to depth
    - Uniqueness of the Injury
    - Adjacent to ALL scar therapy
  - Mechatransduction vs Rehabilitation
  - Histopathologic Changes
Fractional Regenerative Technique

- The ideal candidate
- Treatment Failures
Dysplastic Nevi

Amy Spizuoco DO, FAOCD
Nathan Cleaver DO, FAOCD

Disclosures

• Amy Spizuoco, DO
  - Speaker, Celgene
  - Speaker, Pfizer

• Nathan Cleaver, DO
  - Speaker, Castle Biosciences

Greek in origin

- ‘dys’ — abnormal
- ‘plasia’ — growth

The term “atypical nevus” or dysplastic nevus may connote either clinical or histological concerns about malignant potential. While not all clinically atypical lesions will demonstrate atypical histological features, I don’t believe that diminishes the utility of the term.

History and Origin

- ‘Dysplastic nevus’, controversial term since it was first introduced
- 3 journal articles in the 1970s
- Wallace H. Clark and coworkers
  - ‘B-K Mole Syndrome’
    - Added to Clark’s ‘B-K Mole Syndrome’
    - ‘Familial Atypical Multiple Mole Melanoma Syndrome’
  - Clark believed in a gradual transition from benign to malignant melanocytic neoplasms

5 diagnostic criteria:
- persistent lentiginous hyperplasia
- melanocytic nuclear atypia
- lamellar fibroplasia
- concentric eosinophilic fibroplasia
- sparse patchy lymphocytic infiltrates

Modification of Criteria

- Elder Introduced Dysplastic Nevi Syndrome (DNS)
  - 2 major criteria:
    - lentiginous or epithelioid ‘immature’ hyperplasia
    - ‘random cytological atypia’
  - 5 minor criteria:
    - nests bridging or adjacent to rete ridges
    - lamellar fibroplasia
    - eosinophilic or nonspecific fibroplasia
    - patchy lymphocytic response
    - psoriasiform elongation of rete ridges
Terminology
- Dr. Ackerman emphasized that the term ‘dysplasia’ is imprecise and is used in very different ways in pathology, and that a uniform definition is lacking.
- Left residency at the end of second year to become a fellow under Dr. Clark at Harvard.
- Disagreed on ‘staging’
- Made a clear-cut diagnosis between nevi and melanoma.
- “Your job is diagnosis not prognosis.”

Discordance at the Onset
- Ackerman and Mihara commented on the criteria.
- Nevi referred to as dysplastic nevi are very common in the general population.
- Most compound nevi that are confined to the epidermis and the papillary dermis are dysplastic nevi.
- Did not require cytological atypia as a prerequisite for the diagnosis.
- “Acherman, melanocytic nevi said to be dysplastic nevi are diagnosable easily under scanning magnification, because the architecture of the lesion was considered the only useful.

Various Terminology
- Wide variety of optional names has been put forward.
  - atypical nevus
  - intraepithelial melanocytic neoplasm
  - intradermal proliferation of atypical melanocytes
  - Clark nevus
  - dysplastic nevus
  - atypical melanocytic nevus
  - intraepidermal melanocytic neoplasia
  - intransaepidermal melanocytic proliferation
  - melanocytic nevus
  - melanocytic nevus with dysplasia
  - melanocytic lesion with disordered architecture and melanocytic atypia

Dysplastic Nevus Defined
- Dysplastic nevi are junctional or compound nevi.
- Compound is more common.
- Junctional component usually extends lateral to the intradermal component.
  - at least three rete ridges, often many more
  - Atrophic papillae
  - Intradermal melanocytic nests are often ill-defined.
  - Variable cellular atypia.
- Central dermal component does not extend deeply.
- Richly cellular junctional component.
- Irregularly oriented epidermal rete ridge elongation and bridging.
- Subepidermal perivascular inflammatory infiltrate.

Dysplastic Nevus Defined
- Dermal nests some fibrosis and with granular pigmentation of nevus cells.
- No single cells into the upper epidermis.
- Intradermal mitotic activity is generally absent.

Cytologic Atypia
- Junctional melanocytes show variation in size, shape and orientation.
  - Dark, irregular or convoluted shaped nucleus.
  - Larger vesicular nucleus with prominent nucleolus.
  - Nuclear pleomorphism and anisochromasia.
  - The cytoplasm also varies in amount, stainability, and in melanin content.
  - Dusty and finely granular melanin pigment.
  - Cytological variability even within individual melanocytes.
Discordance Due to Definition

- Elder's view - two major criteria: lentiginous or epithelioid 'immature' hyperplasia, and 'random cytological atypia';
  - five minor criteria were provided by him: nests bridging or adjacent to rete ridges, lamellar fibroplasia, eosinophilic, or nonspecific fibroplasia, patchy lymphocytic response, and pseudoepitheliomatous hyperplasia.
- Barnhill and colleagues - combination of nuclear atypia and abnormal architecture, especially of the intraepidermal component.
- Rivers and colleagues - cytological features less important
  - Advocated as criteria for the diagnostic: peripheral extension of junctional component lateral to the central dermal component; elongated rete ridges; bridging of junctional nests; nests at the sides of rete ridges; concentric eosinophilic fibrosis.
- World Health Organization
  - 2 major and 4 minor criteria.
  - The diagnosis required both major criteria and at least two of the minor criteria.
  - Major criteria were:
    - proliferation of atypical melanocytes at the dej extending at least three rete ridges beyond the lateral border of any dermal component
    - organization of this component in a lentiginous or epithelioid cell pattern
  - Minor criteria were:
    - lamellar fibrosis or concentric eosinophilic fibrosis
    - neovascularization
    - inflammatory infiltrate
    - fusion of rete ridges.

1992 National Institute of Health

- Replace the term "dysplastic nevus" with "nevus with architectural disorder with or without cytologic atypia"
- The old terminology continues to be used.
- Drs. Duffy and Grossman suggest that, despite its problems, the term dysplastic nevus should not be abandoned, as it has become too entrenched in our dermatologic language and practice.
  - Even after 20 years still prevalent.

Present Day DermPath

- Some don't grade atypia at all
- Others grade atypia as mild, moderate or severe
- A third group divides lesions into high grade ("cut it out") and low grade ("leave it alone") lesions
- Interpretation is influenced by geographical preferences
- Interpretations influenced by training site or "school of thought"
- Fellowship directors that trained with Wallace Clark
- Fellowship directors that trained with Bernie Ackerman

"Moderate atypia"

- One pathologist's moderate atypical nevus is another's melanoma
“Dysplastic Nevus”

• Saucerization now the most common technique

Margins influencing re-excision

- Intent of biopsy is to remove the entire lesion
- Majority also report that re-excision lesions with moderate atypia if margins is positive
- Procedures that begin at the visible edge result in a positive margin
- If the goal is to remove the entire lesion, the procedure must begin beyond the visible edge
- Pathologists can elect to "upgrade" a lesion with some degree of atypia if it involves the lateral margin compared to when a similar lesion appears completely excised
- A study of malpractice shows that a false-negative diagnosis of melanoma was the single most common reason for filing a malpractice claim against a pathologist
  - As a result, some pathologists may overcall pigmented lesions

Cautions

- Pathologists need to be aware that their recommendations can tie the clinician’s hands
- Alternatively, a recommendation by a pathologist is generally accepted as evidence of medical necessity for the subsequent procedure
- Recommendations in my reports as a means of conveying important information for the benefit of the clinician, patient, and insurer

Summary

- From a dermatopathologist’s perspective:
  - SKIN (your dermpath)
  - Be comfortable with the interpretation of their histologic interpretation
  - More conservative with grading
  - More liberal with grading
  - Adjust treatment based on your comfort level of their grading
- To excise or not to excise
  - Use clinical judgment
- Not all moderate DN should be re-excised
- Some moderate lesions clinically indicate re-excision based on clinical judgment
- Some moderate lesions histologically indicate re-excision based on clinical judgment
  - I analyze the number of positive margins that are occurring in your personal biopsies and how that is influencing the grading of melanocytic lesions
  - This information is reported to the clinician, may not represent the true surgical margin

Disclosures

- Nathan Cleaver
  - Speaker, Castle Biosciences
- Amy Spitzmuzco
  - Speaker, Pfizer
  - Speaker, Celgene

Ancillary Diagnostic Tools in Dermatopathology

Nathan Cleaver, MD, FAAPC
Amy Spitzmuzco, MD, FAAPC
Why is this important?

- To understand what tests are available to the medical dermatologist and the dermatopathologist
- To understand what tests help further define a diagnosis
- To understand which tests can predict prognosis
- To understand which tests are no longer utilized

Ancillary Testing

- Testing based on aberrations in cellular DNA material
  - Comparative Genomic Hybridization (CGH)
  - Fluorescent In-Situ Hybridization (FISH)
  - Genetic Testing for CDKN2A, BRAF, BAP1
- Testing based on Gene Expression
  - Melanoma Dx
  - DermTech
  - Merlo Test
  - Reflectance Confocal Microscopy

Molecular Advancements

- “In the molecular era, there is precedent for analyzing genetic markers or patterns of gene expression (e.g., gene signatures) in cancer to gain diagnostic or prognostic information that cannot be gleaned from histologic examination alone.”

- March et al. Practical applications of new technologies for melanoma. JAMA June 2013

Human Genome

- Human DNA has 6 million nucleotides packaged into 2 sets of 23 chromosomes

Mutations

- Large scale
  - Amplifications
  - Deletions
  - Translocations
  - Intestinal deletions
  - Reversions
  - Loss of heterozygosity
- Small scale
  - Point mutations
  - Biallelics
  - Deletions

Copy Number Variation

- Copy number variations
  - Abnormal number of copies of one or more sections of the DNA
  - Can result in large regions of the genome being deleted or duplicated on certain chromosomes
  - Amplifications or deletions are most often cause of tumorigenesis
  - Need to detect and map these alterations with a certain disease phenotype
**Comparative Genomic Hybridization**

- If a biopsy does not clearly indicate whether a lesion is a malignant melanoma, comparative genomic hybridization or fluorescent in situ hybridization may be helpful in determining a diagnosis. In both of these tests, doctors look for signs of melanoma as they compare the DNA in tumor cells to the DNA in normal tissue.
- Screen for abnormalities in DNA material
  - First described in 1993
  - >3 abnormalities significant

**CGH in Melanoma**

- Common aberrations in melanoma are loss of 9q and 10, and gains in 7p.
- Distinct genomic patterns are associated with particular melanoma subtypes.
- Regions containing oncogenes (BRAF and MITF) are frequently amplified, while regions containing tumor suppressor genes (CDKN2A and PTEN) are frequently deleted.
- BRAF and NRAS in 21% of melanomas and found distinct patterns associated with melanomas from skin with chronic sun-induced damage, skin without such damage, and from acral and mucosa sites.

**CGH in Benign Nevi**

- Compared to melanoma, most nevi lack or have isolated genomic aberrations.
- Spitz nevi exhibit gain in chromosome 1p.

**Fluorescence In Situ Hybridization**

- Molecular cyogenetic method for determining the copy number of specific regions or sequences of DNA.
- Uses fluorescent probes to bind specific DNA segments in nuclei of cells.
- Performed on formalin-fixed, paraffin-embedded tissues.
- Can only detect genes and chromosomes targeted by specific probes.
  - Pros: Can detect single-point mutations
    - Technical expertise is less than with CGH
    - May distinguish from spitzoid melanoma and spitz new.
  - Cons: Can have false positivity (1/36 in one study) due to tetraploidy.
  - A fraction of dysplastic nevi are FISH positive.

**Gene Testing**

- BRAF
  - Encodes a protein belonging to the RAF family of serine/threonine protein kinases.
  - V600E
    - Plays a role in regulating the MAP/Erk signaling pathway, which affects cell division, differentiation, and secretion.
    - Mutations in this gene, most commonly the V600E mutation, are the most frequently identified genetic mutations in melanoma.
    - Also associated with cardiovascukar, Noonan, and Costello syndromes.
  - CDK2NA
    - Encodes several tumor suppressor genes which differ in their first exons.
    - Functions as inhibitors of CDK4, which frequently mutated or deleted in a wide variety of tumors, and is known to be an important tumor suppressor gene.
1. Malignant melanoma in one or more first- or second-degree relatives
2. High total body nevus count (often >50) including some of which are clinically atypical (asymmetric, raised, color variegation present, of variable sizes)
3. Nevi with certain histologic features on microscopy
* architectural disorder with asymmetry, subepidermal fibroplasia, and lentiginous melanocytic hyperplasia with spindle or epithelioid melanocytes gathering in nests of variable size and fusing with adjacent rete ridges to form bridges; variable dermal lymphocyte infiltration and the "shouldering" phenomenon wherein intraepidermal melanocytes extend alone or in groups beyond the main dermal component may also be present

Diagnostic criteria for Familial Atypical Multiple Mole Melanoma syndrome

- All three criteria are needed to make a diagnosis

Clinical validity and prognostic value of DecisionDx-Melanoma have been demonstrated in 690 Stage I-III patients

<table>
<thead>
<tr>
<th>GEP Class</th>
<th>5-year RFS</th>
<th>Events (%)</th>
<th>5-year DMFS</th>
<th>Events (%)</th>
<th>5-year MSS</th>
<th>Events (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1A</td>
<td>90% (87-93%)</td>
<td>37 (12%)</td>
<td>94% (91-97%)</td>
<td>24 (8%)</td>
<td>99% (97-100%)</td>
<td>4 (1%)</td>
</tr>
<tr>
<td>Class 1B</td>
<td>81% (73-90%)</td>
<td>18 (23%)</td>
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<td>37% (31-44%)</td>
<td>130 (61%)</td>
<td>50% (43-58%)</td>
<td>100 (47%)</td>
<td>75% (69-83%)</td>
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</table>

BRAF
- 1/4 advanced mm cases have mutation
- V600E most common
- Many different 88s in USA
- MAPK pathway via signal transduction
- BRAF-V600E mutation in >90% cases
- Vemurafenib (Zelboraf)
  - selective inhibitors of BRAF
  - Temozolomide (Temodal)
  - inhibitors of MEK kinase

CDK4/6
- Small portion of melanomas
- p16alu
- Strong family history of melanoma
- FAMMM syndrome

Malignant melanoma in one or more first- or second-degree relatives

- High total body nevus count (often >50) including some of which are clinically atypical (asymmetric, raised, color variegation present, of variable sizes)
- Nevi with certain histologic features on microscopy
  - architectural disorder with asymmetry, subepidermal fibroplasia, and lentiginous melanocytic hyperplasia with spindle or epithelioid melanocytes gathering in nests of variable size and fusing with adjacent rete ridges to form bridges; variable dermal lymphocyte infiltration and the "shouldering" phenomenon wherein intraepidermal melanocytes extend alone or in groups beyond the main dermal component may also be present

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</table>

Results
- Will give you the following possible results based on probability score
- Class 1A = 92% RFS at 5 years, 96% DFMS at 5 years
- Class 1B = 90% RFS at 5 years, 96% DFMS at 5 years
- Class 2A = 77% RFS at 5 years, 85% DFMS at 5 years
- Class 2B = 48% RFS at 5 years, 65% DFMS at 5 years
Sentinel Lymph Node Guidance?

- Looked at the results of the test, age, and NCCN guidelines for SLNB.
- Current SLNB guidelines:

<table>
<thead>
<tr>
<th>NCCN Thresholds for SLNB (v2.2018)</th>
<th>SLN+ (positivity rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss and consider</td>
<td>5% to 10%</td>
</tr>
<tr>
<td>Do not recommend</td>
<td>&lt;5%</td>
</tr>
</tbody>
</table>

- SLNB positivity risk for patients with T1-T2 tumors and inform SLNB guidance

<table>
<thead>
<tr>
<th>Thresholds based on NCCN Guidelines (v2.2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=1,421</td>
</tr>
<tr>
<td>SLNB positivity risk for T1-T2 patients:</td>
</tr>
<tr>
<td>Class 1A</td>
</tr>
<tr>
<td>&lt;55 years: 7.6%</td>
</tr>
<tr>
<td>55-64 years: 4.9%</td>
</tr>
<tr>
<td>≥65 years: 1.6%</td>
</tr>
<tr>
<td>Class 1B/2A</td>
</tr>
<tr>
<td>&lt;55 years: 19.6%</td>
</tr>
<tr>
<td>55-64 years: 7.7%</td>
</tr>
<tr>
<td>≥65 years: 6.9%</td>
</tr>
<tr>
<td>Class 2B</td>
</tr>
<tr>
<td>&lt;55 years: 24.0%</td>
</tr>
<tr>
<td>55-64 years: 30.8%</td>
</tr>
<tr>
<td>≥65 years: 11.9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>SLN Positivity Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;55</td>
<td>Class 1A, Class 1B/2A, Class 2B</td>
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<tr>
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</tr>
<tr>
<td>Do not Recommend</td>
</tr>
</tbody>
</table>

Thoughts

- Pros: Can provide some clinical guidance on prognosis
  - Non-invasive test
  - Cost: Currently free to patient, they will receive an EOB that many patients think is a bill
  - May be able to provide SLNB supplemental guidance in older patient populations
- Cons: More work for your staff
  - Cost: Insurance is still often paying something for the test, and will ultimately need to collect on the test to stay in business
  - Not considered standard of care
  - Will it ultimately change your management?

Myriad MyPath

- When to use: cannot distinguish new from melanoma histologically
- Ordered by dermatopathologist
- Varies from CI-G and FISH by analysis of gene expression, rather than genetic aberrations
- Measures the expression of 23 genes by reverse transcriptase-PCR methodology
- Look at genes involved in cell differentiation and immune signaling: PRRM2, SOX18, SOX9, SOX10, SOX11, P73, CCL5, CCL6, CCL11, CCL22, BP2, LCCL2, MAPK6, SELL.

<table>
<thead>
<tr>
<th>SLN Positivity Risk</th>
<th>NCCN Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss and Consider</td>
<td></td>
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Thoughts

- Sensitivity of 90-95%
- Specificity of 95-96%
- Result is a single numerical score

<table>
<thead>
<tr>
<th>Myriad MyPath</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 gene (PRRM2)</td>
</tr>
<tr>
<td>5 genes (7/8MI)</td>
</tr>
<tr>
<td>6 genes (8I)</td>
</tr>
<tr>
<td>9 genes (9Io)</td>
</tr>
</tbody>
</table>

Numerical Score

- 10-15% of biopsied melanocytic lesions may be histopathologically ambiguous and may help define a melanocytic lesion
- May also be helpful with disagreement
Reflectance Confocal Microscopy and Dysplastic Nevi

- Weinstock et al.
  - Characteristics of melanocytes at the DE junction
  - Grades dysplasia
  - Substantial to low agreement

HISTOLOGICAL CONTROVERSY

- Weinstock et al.
  - Characteristics of melanocytes at the DE junction
  - Grades dysplasia
  - Substantial to low agreement

Nevo-Melanocytic Industrial Complex

- Term describing what may be perceived as an increasing tendency to over-biopsy and over-treat dysplastic nevi
- Reflectance Confocal Microscopy may be an alternative

What is Reflectance Confocal Microscopy?

Reflectance Confocal Microscopy (RCM) create images by illuminating the skin with a low power laser diode and reflecting the light back through the system, utilizing customized optics to display the final image computer screen.

Procedure

Start: 5 mins
Finish: 5 to 10 Minutes
**Classification**

**Normal Features**
- Ringed pattern
- Meshwork pattern
- Clod patterns
- Edged papilla

**Atypical Features**
- Atypical Cells at DEJ
- Irregular junctional nests
- Non-edged papilla

**Histology & Confocal: Dermo-epidermal Junction**
- Dark areas w/ microcirculation
- Capillary loops and collagen bundles
- Ring of basal keratinocytes

**RCM produce Horizontal Sections**
- Stratum Corneum
- Granular layer
- Spinous layer
- Basal layer
- Papillary dermis
- Superficial reticular dermis

Predominance of edged papillae at DEJ, corresponding to dermal papillae surrounded by a rim of small bright cells, appearing as bright rings sharply contrasting with the dark background.

Predominance of junctional thickenings corresponding to aggregates of the dermo-epidermal space formed by aggregated cells and clusters bulging within the dermal papillae in continuity with the basal layer.
Dysplastic Nevi

- On RCM, dysplastic nevi often have a primarily ring-meshwork pattern with 1-2 atypical features
- Benign nevi usually have no atypical features
- Melanoma often has greater than 2 atypical features on RCM
Epidermal Genetic Information Retrieval (EGIR)
- Adhesive tape "tape-stripping"
- Obtains RNA from stratum corneum
- 2-gene classification algorithm

DermTech, Inc
- Pigmented Lesion Assay (PLA)
- LINC00516/PRAME gene expression
- Noninvasive adhesive patch biopsy

LINC50018/PRAME
- Long intergenic non-protein coding RNA 518 gene
- Preferentially expressed antigen in melanoma gene

DermTech, Inc
- Detection of the genes scored 1+100
- Higher score malignant disease
- Lesion biology rather than visual features of lesion
- Sens/Spec 92%/69%
Medicare Guidelines

- Originally stated by company representatives that you could charge for biopsy CPT code for obtaining the sample
- New 2013 CPT codes, specifically state that this will not be a covered biopsy procedure

MelaFIND (MELA Sciences Inc, Irvington, New York)

- Multispectral computer vision system
- Additional information on melanocytic lesions
- Objectively assessing their three-dimensional morphology
- Less than 6mm
- 10 different spectral bands
  - Blue (436nm) to near infrared (700nm)

MelaFIND

- Higher sens/spec than clinician
- Binary output
- Positive—consider biopsy
- Negative—observe

How Does MelaFind Work?

Hardware:
- Multispectral camera
- 10 different spectral bands
- 436nm to near infrared
- 10 different spectral bands
- 436nm to near infrared

Software:
- Registration and analysis
- Image processing
- Statistical analysis
- Biopsy guidance

MelaFind Sciences 2013
Independent Evaluation

- Independent study of 360 pigmented lesions.
- 32 of the lesions were found to be suspicious of malignancy.
- Of the 115 excised lesions, 3 were melanoma.
- Among all lesions biopsied, sensitivity was 100%, specificity of 85%.
- Authors concluded "overall specificity and benign-to-malignant ratio of excised lesions were acceptable."

Friday, October 12, 2018

6:00 a.m. - 7:00 a.m.  Aclaris Product Theater  
(No CME Awarded)  
Located in Plaza Room

7:00 a.m. - 8:00 a.m.  Pain Management in Dermatology  
Miranda Reed Cleaver, DO

8:00 a.m. - 9:00 a.m.  The Advantage of Leadership in Dermatology  
James Warrick

9:00 a.m. - 10:00 a.m.  Creative Ways to Maximize Professional Efforts Most Effectively and Avoid Practice Pitfalls  
Will Kirby, DO, FAOCD

10:00 a.m. - 10:30 a.m.  Break with Exhibitors

10:30 a.m. - 11:30 a.m.  Social Media in the Dermatology Practice  
Matthew Elias, DO, FAOCD

11:30 a.m. - 12:30 p.m.  Lilly USA, LLC Product Theater  
(No CME Awarded)  
Located in Plaza Room

1:00 p.m. - 2:00 p.m.  Decoding Delayed Hypersensitivity Reactions  
Kari Martin, MD, FAAD

2:00 p.m. - 2:30 p.m.  Break with Exhibitors

2:30 p.m. - 3:30 p.m.  Mohs Certification Update  
Edward Yob, DO, FAOCD

3:30 p.m. - 4:30 p.m.  Geriatric Considerations in Dermatology  
Lauren Mazzurco, DO

4:30 p.m. - 5:30 p.m.  Dermatologic Surgery in the Elderly: Case Review and Techniques  
Jason Mazzurco, DO, FAOCD

5:30 p.m. - 6:30 p.m.  Atopic Dermatitis Update  
Kari Martin, MD, FAAD
Creative Ways to Maximize Professional Efforts Most Effectively and Avoid Practice Pitfalls

Dr. WILL KIRBY

• Fellow, American Osteopathic College of Dermatology
• Clinical Assistant Professor and Cosmetic Director, Western University of Health Sciences Dermatology Residency Program
• Expert Reviewer, Osteopathic Medical Board of California, Division of Dermatology
• Expert Witness, Legal Cases involving Aesthetic Dermatology

Disclosures:

No relevant disclosures.

No irrelevant disclosures.

Other thoughts...

• My goal is to analyze the business of dermatology efficiently so as to maximize effort
• At least some (if not all) of the action items I’ll discuss today are applicable to your own practice
• Mantra: Money ≠ Success. Freedom = Success!
• Sincere thanks to the AOCD for having a meeting in California!

Relevant References

1. [Link](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1237745/pdf/westjmed00264-0092.pdf)
2. [Link](http://scholarship.law.edu/cgi/viewcontent.cgi?article=1529&context=jchlp)
5. [Link](http://www.ombc.ca.gov/)
6. [Link](http://world.oascoa.com/)
7. [Link](http://www.mbc.ca.gov/Consumers/Complaints/Complaints_FAQ/Practices_and_Protocols_FAQ.aspx)
8. [Link](http://blogs.harvard.edu/billofhealth/2013/08/29/the-incentives-to-arbitrate-medical-malpractice-disputes/)

This lecture is not...

• A risk management lecture
• All inclusive
• An economic/business discussion
• Applicable to all state rules/regs
• A substitute for legal advice
This lecture is...

- Encouragement to use non-traditional ways to improve your (not practice but) life...
- A means by which to open the audience's minds to alternative methods of navigating the current medicolegal environment
- A teaching mechanism for insider tips from the speaker who has spent a decade working in the most litigious city in the most litigious state with the most challenging patient population in the universe

Most Importantly...

- This lecture is intended to give you ten real, actual, inexpensive, tangible action items to strongly consider incorporating into your own practice
- Not only might they prevent an unwanted interaction with a patient but they may likely increase patient satisfaction, employee retention and you might be pleasantly surprised to find that they are emotionally rewarding
- While you'll experience many academic lectures over the next few days, it is my contention that this one in particular can offer a positive impact on your practice

And...

- You don’t need to take notes
- The material is dense and will be peppered with captivating personal stores and enchanting anecdotes
- I’ll emphasize anything important
- There will be a one page recap at the end highlighting all ten action items
- I’ll leave time for Q and A as well
- Do NOT call me next week!

Offense Vs. Defense

- Practitioners are often focused on the maximization of patient volume, management of patient schedule, reimbursement and collections.
- The leaves less time (or the outright neglect) of compliance with rules/regulations, and medicolegal considerations.
- The point?
- Offense makes money and defense protects the practice. And a good practice has both!

What to do?

- Many ways to improve “offense” (which means just increase revenue): Hire practice manager, marketing, advertising, expanding hours, hiring allied health care professions, see more patients, work faster, work longer hours, accept more insurance plans, etc.
  - But how do you best manage the “defense”?
  - Better put: “Winterize your beach house”

Winterize Your Beach House
But Why?

- Why does it matter if I am familiar with the state rules and regulations? My competitors aren’t.
- Lawsuits are scary... but the State Medical Boards are like Mike Tyson on Redbull and Rooflies!
- “If you aren’t at the table then you are on the table”

State Rules and Regulations

- Quagmire
- Overregulated Industry
- Conflicting rules and regulations
- Lack of compliance by competitors
- Absence of uniformity in rules/regs enforcement
- Dearth of transparency in the review process

Hire Health Care Attorney to Review Your Practice

- Paid by the hour. Thus, one could argue that they are incentivized to work slowly and inefficiently
- Often bill to obtain information that you can easy obtain by yourself
- Emotionally taxing for you: Fear based practices lead unnecessary and excess work
- But some are excellent and can help ensure that your “defense” is strong

What to Do About Rules/Regs?

- Simply go to your state medical board website to begin:
  I. Subscribe to the monthly newsletter. They often make useful announcements
  II. Go to the FAQ section of the website.
  III. Review the posted (monthly or quarterly) newsletters to see why others ran into issues.
  IV. Apply to become an expert reviewer...

Expert Reviewer

- The Medical Board will contact you to review cases
- You’ll be financially compensated for your time and effort
- You are protected from lawsuits related to the case
- In some states you remain anonymous
- They often provide training as to how to be an expert reviewer
- You get to participate in the review process and enforcement of rules/regs = best way to truly understand how to keep your practice in compliance

Quarterly Medical Board Meetings

- Attend in-person
- Most have teleconferences where you can listen in remotely
- You can monitor and assembly bills or senate bills coming down the pike so you can be prepared
- You’ll build professional relationships with lobbyists and influence rules regs
Discussion of Lawsuits

- Expensive to defend
- Time consuming
- May coincide with complaint (and subsequent investigation) to the medical board
- Your insurance company may force you to settle
- Emotionally taxing
- Listed as a malpractitioner in the National Practitioner Data Bank (NPDB) pursuant to the Healthcare Quality Improvement Act of 1986 (HCQIA).

Medical Malpractice Insurance

DUH

- You obviously need med-mal insurance
- Your insurance broker is not your friend
- They will try to sell you more insurance than you need or could ever use
- But annual med-mal review is a good idea; you might be performing procedures that your policy doesn’t even cover

Medical Malpractice Claims

<table>
<thead>
<tr>
<th>Cause of Action</th>
<th>No. (%) of 124 Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of informed consent</td>
<td>53 (30.5)</td>
</tr>
<tr>
<td>Fraud</td>
<td>15 (9.6)</td>
</tr>
<tr>
<td>Loss of consortium</td>
<td>13 (7.9)</td>
</tr>
<tr>
<td>Assault/battery</td>
<td>9 (5.2)</td>
</tr>
<tr>
<td>Strict products liability</td>
<td>9 (5.2)</td>
</tr>
<tr>
<td>Breach of contract</td>
<td>8 (4.6)</td>
</tr>
<tr>
<td>Infliction of emotional distress</td>
<td>8 (4.6)</td>
</tr>
<tr>
<td>Negligent treatment</td>
<td>7 (4.1)</td>
</tr>
<tr>
<td>Gross negligence</td>
<td>5 (2.8)</td>
</tr>
<tr>
<td>Recklessness</td>
<td>5 (2.8)</td>
</tr>
<tr>
<td>Uninformed patient/non-consent</td>
<td>5 (2.8)</td>
</tr>
<tr>
<td>Negligence per se</td>
<td>4 (2.5)</td>
</tr>
<tr>
<td>Other</td>
<td>16 (9.2)</td>
</tr>
</tbody>
</table>

Informed Consent

Informal:
- Often an informed consent comes informally in the course of discussion with a patient during a routine office visit or similar situation.

Format:
- Informed consent can also be given formally, by having a patient sign a document that states that the health care provider has fully discussed a treatment or procedure and that the patient fully acknowledges and agrees to the risks.

What Happens if You Perform a Treatment Without an Informed Consent?

- You could be charged with battery or fraud.
- Battery is defined as an unlawful act of applying force to the person of another without consent.
- You could be accused of negligence in a medical malpractice lawsuit.
Imperative Parts of a Solid Informed Consent

- Layman’s terms
- Offer alternatives to the treatment
- Alternatives included no treatment at all
- Side effects of treatment
- Chances of developing side effects
- Section for patient to document that they understand the informed consent
- Acknowledgement that they aren’t under the influence or were coerced into signing
- Acknowledgement that all questions were answered.
- Acknowledgement that patient requests treatment

Arbitration Agreement

- Check with a health attorney in your respective state
- If it is allowed in your state then consider incorporating an arbitration agreement
- An arbitration doesn’t take rights away from patients – it just solves disputes much more inexpensively and quickly
- Your fate isn’t in the hands of a jury
- Arbitration agreements may dissuade frivolous lawsuits

Obtain Proper Training

- Reps aren’t your friends nor are they qualified to teach you how to use a product or a device
- Your training must be documented and quantified
- Your training needs to meet or exceed the community standards
- Consider seeking out an accredited training facility that offers CME to quantify training

Purge Problem Patients

- Ten percent of your patients cause 90 percent of your problems. And that takes up a lot of time!
- It is very conceivable to think that those problems patients take a big emotional toll on your employees and you.
- Just like any toxic relationship, you can’t change them.
- Make a list of your problem patients and legally dismiss them.
- Dismissal must meet specific state requirements

FIND MORE FREE TIME

PATIENT DISMISSAL LETTER

- Must provide letter to patient (USPS letter, certified letter, fax, email)
- Must provide emergency care for 14 days
- Must provide them information as to where they can also receive care
- Provide information on how to obtain medical records
Providing Medical Records

• Patients may have a copy (not original)
• You have 14 days to provide records
• You can (and should!) charge for the records
• You should always mail the records to the patient

Hire an NP or a PA

• Add some diversity to your practice
• Allows you to connects with patients you have little in common with
• It’s the future
• Can be a great income source
• Allows you to concentrate on more important things in life
• Dermatology is the holy grail of medicine because of its relationship with NPs or PAs!

Preventing Burnout

• Financial arguments with patients are stressful.
• Consider giving refunds anytime a patient complains.
• When you do give a refund, require that the patient sign a Refund Release form.
• The Refund Release form requires them to agree to your terms (no disparagement, no complaint to the medical board, no legal action, etc.)
• When the patient cashes the refund check...

Join the Academic Faculty of a Dermatology Residency Program

• The time commitment is extremely flexible
• Patients love having young doctors present
• You keep your skills sharp by teaching
• Education is backbone of our profession
• Dermatology residents have a command of the rules/regs!!!

Improve Your On-Line Reputation

• Wide next vs. efficient net
• Having an excellent on-line reputation will allow you to capture the best patients
• Perception is Reality
• Social media is the future
• Putting your head in the sand won’t make it go away
• You can easily improve your Yelp, Facebook and Google reviews
Case Study: My Practice

The Next Slide...

...is the only slide you need to pay attention to!

TEN POINT RECAP:
1. Monitor updates from your state medical board!
2. Apply to become an expert reviewer!
3. Review your med-mal insurance policy annually!
4. Improve your Informed Consent (and add an Arbitration Agreement if your state allows it!)
5. Obtain Proper Training!
6. Purge Problem Patients (dismiss properly and possibly provide medical records!)
7. Add a Refund Release form to your practice!
8. Hire an NP or a PA.
9. Join the faculty of a dermatology residency program
10. Improve your on-line professional reputation!

Questions and Answers (Tip: All the answers are “no”)
• May I have a copies of your Informed Consents?
• May I have a copy of your Arbitration Agreement?
• May I have a copy of your Refund Release form?
• May I have a copy of your Patient Dismissal Letter?

Questions and Answers (Tip: All the answers are “maybe”)
• Can you refer me to a med-mal insurance broker?
• Can you refer me, or my NP/PA get proper training?
• Can you refer me to a site to improve my on-line professional reputation?

Real Questions and Answers
• Ask me anything you like...
• I’m an open book...
• I’d rather you ask me now than accost me while I eat a stale muffin in eight minutes...
• I might say “no”.
• But you can always email me at anytime in the future if you think of a question at a later date: DrWillKirby@hotmail.com
Thank you!

- Will Kirby, D.O., FAOCD
Social Media in Dermatology

MATTHEW J. ELIAS DO FAOCD FAAD

Disclosures
- None to report in the last 12 months
- Previously Cutera, Galderma, Valeant

Outline
- What is Social Media?
  - Facebook, Instagram, KOL, IG Stories, Twitter, Snapchat, YouTube, Vimeo, RealSelf, SpotLyte, etc.
- What can Social Media do for your Practice?
  - Attract new patients, Advertise services, Inform patients of what’s going on in your practice
- What can you do for Social Media?
  - The Board Certified Dermatologists “TBCD” Facebook group
    - TBCD, TBCD-GPO, TBCD-Career Center, TBCD-New Beauty Partnership, REAL

Social Media for your practice...
- FB, Insta, etc. – Why do you need to be in these mediums?
  - To engage patients about your brand
  - Who are you? What do you do? Why are you the expert in your area promoting
    your services?
  - REAL Board Certified Dermatologist – expert in anything that affects the form and
    function of the skin including rashes, growths, skin cancer, injectables, lasers, fat
    destruction, etc.
  - Use Social to promote in line with well-established sales funnels, events, etc.
    - Black Friday, Cyber Monday, Super Bowl, Breast Cancer Awareness, etc.

Social Media for you not your practice
- How can you be engaged with your peers?
  - “TBCD” – The Board Certified Dermatologists
- What can this engagement provide you and your practice?
  - The Promise and Perils of Social Media...

October – Breast Cancer Awareness – Turn Your Logo Pink...

- Turn Your Logo Pink...
The Promise and Perils of Social Media

- Promise
  - Group purchases
  - Increased advocacy
  - Cross-generational relationships
  - Expertise
  - Professional events
  - Practice management
  - Colleague and networking

- Peril
  - Infighting
  - Control by outside forces

“TBCD” – The Board Certified Dermatologists

TBCD

RealPhysicians.org

Excellence in Medicine
Saturday, October 13, 2018

6:00 a.m. - 7:00 a.m.  Morning Exercise Session  
Located in Plaza Room

7:00 a.m. - 9:00 a.m.  Dysplasic Nevi  
Reagan Anderson, DO, FAOCD

9:00 a.m. - 10:00 a.m.  Patients Come Second: A Dermatology Practice's Unique Approach  
Steven Grekin, DO, FAOCD

10:00 a.m. - 10:30 a.m.  Break with Exhibitors

10:30 a.m. - 11:30 a.m.  Minimizing HIPAA Liability  
Leslie Rojas, Esq.

11:30 a.m. - 12:30 p.m.  Regeneron & Sanofi Genzyme Product Theater  
(No CME Awarded)  
Located in Plaza Room

11:30 a.m. - 1:00 p.m.  Board of Trustees Meeting

1:00 p.m. - 2:00 p.m.  Billing and Coding Update  
Alexander Miller, MD

2:00 p.m. - 2:30 p.m.  Break with Exhibitors

2:30 p.m. - 3:30 p.m.  Mohs Reconstructions: Contours & Cartilage  
Christopher Weyer, DO, FAOCD

3:30 p.m. - 4:30 p.m.  Body Contouring: Noninvasive and Beyond  
Jamie Moenster, DO
Given published data on the very low likelihood that incompletely biopsied DN will recur as melanoma, it does not seem reasonable to suggest that all DN require re-excision. Given the fact that some DN turn out to be invasive melanoma when re-excised (such as in the article in question), some DN should clearly be re-excised. As dermatologists, we all struggle with the decision regarding observation versus re-excision, particularly when the atypia has been characterized as “severe.”


Dysplastic Nevi (DN) were first reported in 1978 by Clark and colleagues.
- These were histologic categorizations of nevi found in patients who were “melanoma prone” due to family history.
- Later they were known as dysplastic nevi as they had architectural and cytologic atypia (similar concept to cervical dysplasia)

Dysplastic is more of a histologic term. Some don’t use it as there is no consensus on how to grade.
Atypia is more of a clinical term.
However, no term has universal acceptance.

Estimated they occur in about 10% of the population of Northern European dissent (7–21%)
Pts with a history of melanoma – 34–59% have DN

Disclosures
- Founder of Your Health University

What is a Dysplastic Nevus?

How Common are Dysplastic Nevi?

References:
When/Where Do They Occur?

- Melanomas are usually found in sun-exposed areas (chronic or intermittent). Usually in later years of life although due to tanning beds this is changing.
- Dysplastic Nevi are found in sun exposed AND non sun-exposed areas.

How Do Dysplastic Nevi Relate to Melanoma?

- Very difficult question to answer.
- There is no agreement on terminology or grading among Dermatopathologists
- Dermatopathologists do not even agree with themselves on grading
- How do you answer the question if we do not have agreement?
- How can we agree to how far something is if one person measures a mile as 5280 feet and another as 4500 feet?

To Agree or Disagree or ...

- “The reliability of a diagnostic test depends on the reproducibility of the result.”
- 8 Expert pathologists convened (published and well recognized in the community as experts).
- Each submitted 5 specimens.
- 37 of those specimens were used (one slide per case). Had to be “classic cases.”
- Had to say “benign,” “malignant,” or “indeterminate.”

To Agree or Disagree or ...

- Given pt history but not diagnosis of slide.
- All identifying information removed from slides.
- Same slide went to each expert - rotated.
- Sign out was done in the experts “usual manner.”

Results

- Agreed with each other 62% of the time!
- 38% had 2 or more discordant interpretations.
- No expert had more disproportionate discordance.
- K statistic for 8 observers and 3 possible outcomes was 0.5 with a p value of <0.0001.
- 0.5 indicates moderate agreement.

K statistic

- >0.81 = excellent to almost perfect agreement
- 0.61–0.81 = substantial agreement
- 0.41–0.6 = moderate agreement
- 0.21–0.4 = fair agreement
- 0.01–0.2 = slight agreement
One off???

- Similar study found K statistic of 0.34.

How Often Misdiagnosed?

- False Positives – DN read as MIS 17.6%. DN read as Invasive Melanomas in 3.2%
- False Negatives – Melanomas read as DN in 12%.


“`One Dermatopathologist’s moderately atypical nevus may be another’s melanoma.”`


Histopathology Section

Biopsy Dysplastic Nevi

- “It is not necessary to perform a biopsy of a dysplastic nevus unless there is clinical suspicion for melanoma.”
- Really???

Case 1
Case 8

Case 9

Case 10

Case 11

Case 12

The Point is Not All Melanomas
Look Like This
Numbers

- In my clinic, 4% of shave removals of DN are actually melanomas!
- This does not count things like the last picture which is an obvious melanoma and are biopsies, not shave removals
- We are projected to treat over 150 melanomas this year in my clinic from shave removals!

How To Biopsy

- Pathologists want excision with 1 foot margins I think.
- When comparing shave to punch, shaves had 95.5% concordance with final diagnosis. Punches had 70.7% concordance.

How do DN relate to Melanoma?

- DN do relate to a patient’s risk for developing melanoma (perhaps NOT in an individual lesion)
- Someone with one DN has a RR of 1.6
- Someone with five or more DN has a RR of 10.5. Retrospective
- Many theories = not exactly clear
- Environmental exposures and genetics play a role.
- Genetics – very complicated. More later on this.

Conflict

- Of course there is a lot of debate and conflicting studies on the above. One thing is clear, more DN = increased risk of developing melanoma.

Etiology

- Lies, really bad lies, statistics…
- 20% of melanomas arise from DN.
- ? % of melanomas arise from regular nevi
- Rest of melanomas arise de novo

Do DN Turn Into Melanomas?

- DN are a clear marker for a patient’s risk of developing melanoma later in life
Do DN Turn Into Melanomas?

- Estimates are all over the place. Some quoted as low as 1 in 200,000
- These estimates are fraught with so many problems that we would not allow them in any other aspect of medicine.


Guidelines

- “We excise too many DN.”
- “Most do not turn in melanoma.”
- Moderate−severe and Severe − excise
- All others monitor

What Are Your Peers Doing

- 6177 Dermatologists Surveyed between 2001−2015. 703 responded with data
- Margins in 2001 were 1.9mm
- Margins in 2015 were 2.3mm

What Is Excised With + Margins?

- Severe − 98% excise!!!
- Moderate − 67% excise
- Mild − 12% excise
- 2% do not excise regardless!!!

What Is Excised With − Margins?

- Severe − 49%
- Moderate − 10%
- Mild − 1%
- 51% do not re−excise
What % of margin seen with shave Removals?

- A) Less than 1%
- B) 1–5%
- C) 5–15%
- D) 15–25%
- E) More than 25% but likely less than 30%

Experienced vs New

- Older Dermatologists do not excise as frequently and use smaller margins
- Average RTC is 6–12 months

My Clinic

- Shave remove everything that I consider is likely a DN.
- Biopsy anything that I think is a melanoma
- Mild, Mild–Moderate – recommend monitoring. Can have excision if desires. (2mm)
- Moderate – recommend excising. Can have excision if desires. (3mm)
- Moderate–severe. Excise (4mm)
- Severe. Excise (5 mm)

Recurrent DN

- What do you do with a recurrent DN?

At the End of the Day

- “Until a simple and accurate genetic test can be applied to tissue specimens that is characterized by high specificity and sensitivity, the best the physician can do is to minimize the potential sources of error.”
- Dr. Glen Bowen


Informed Consent

- Mild and Mild-Moderate Dysplastic Nevus - General consensus among Dermatologists is that we monitor these lesions. If any pigment returns we usually recommend excising the area. These lesions can be excised as primary form of treatment but this is usually not necessary.

- Moderate Dysplastic Nevus - There is some debate among Dermatologists about the treatment for these atypical moles. Our recommendation, due to their unknown biologic potential, is to excise them. Some Dermatologists would just monitor these lesions and while this is not usually our preferred way of addressing these lesions, it is still acceptable. If you choose this option it is very important that you look at the area every month in the mirror to see if it looks like the mole is returning (darkness or pigment appearing, change in the scar, ...).

- Moderate-Severe and Severely Dysplastic Nevus - We recommend excising these lesions. These lesions can be monitored but this is against our medical advice and we highly discourage this approach as these have a fairly reasonable chance of turning into the skin cancer called Melanoma.

- I understand that I need to have routine full body skin exams, at least yearly, by a Dermatologist. I understand I should perform monthly self-skin exams of my skin in order to help spot concerning lesions early and I should call immediately for an appointment if I find a concerning lesion or if anything on my body is growing, changing, or not healing.

I hereby authorize Colorado Dermatology Institute providers/residents/associates/assistants to perform the procedure(s). The procedure, its purpose, as well as alternative therapeutic options have been explained to me (including the option to not having any treatment performed at all.) Although every attempt will be made to minimize the chance of complications, I understand that the following complications are possible:

- Allergic reaction to anesthesia, antibiotics, or bandages.
- Bleeding from the surgical site.
- Bruising at or around the surgical site.
- Scar formation will occur, and on rare occasions unsightly or thickened scars (keloid, hypertrophic, or pink/red scars) can form.
- Wound infection
- Ulcerations, necrosis (tissue death), or dehiscence (separations of the edges of the suture wound).
- Post-operative discomfort and/or pain.
- Skin color changes (lightening or darkening), which may be permanent.
- Recurrence (regrowth) of the lesion at the surgical location or elsewhere in the body.
- Loss of or decreased sensation (feeling), which may be permanent.
- In rare instances loss of movement around the surgical site which may be permanent.
I have had the opportunity to speak with the medical/pathology staff at Colorado Dermatology Institute and have been given the link to educational videos the Colorado Dermatology Institute has published. I understand that it is highly encouraged to watch the videos that pertain to my diagnosis and treatment so that I can better understand the diagnosis and proposed treatment. All of my questions have been addressed and I understand the diagnosis and treatment options and recommendations.

I understand it is my responsibility to make sure I take proper care of my treatment site to ensure the best healing. Post-operative instructions are provided to minimize the chance and severity of many of the potential complications. I acknowledge that no guarantee or assurance has been given by anyone as to the end result of the procedure(s).
Billing and Coding Update

Alexander Miller, M.D.
AAD Representative to the AMA CPT Advisory Committee

How Did We Get Here?

Survey revealed bimodal data distribution; respondents were valuing different procedures

RUC Survey sent to AAD Members

Specialty survey results are the only tool available to support code values

Challenging survey results

Survey revealed bimodal data distribution; respondents were valuing different procedures

Rationale for New Codes

• Previous skin biopsy codes did not distinguish between the different biopsy techniques that were being used

CPT Recommended technique specification in new biopsy codes

• Will also provide for reimbursement commensurate with the technique used

New and Restructured Biopsy Codes

Arriving on January 1, 2019

Tangential biopsy

Punch Biopsy

Incisional Biopsy

It's all about the Technique!
How Did We Get Here?

February 2017
- CPT Editorial Panel deleted 11100; 11101
- 6 New codes created based on technique utilized
  - Each technique: primary code and add-on code

March 2017
- RUC survey sent to AAD members

April 2017
- Survey results presented to the RUC

Biopsy Codes Effective Jan., 1, 2019

- Integumentary biopsy codes 11100, 11101 have been deleted
- New Skin Biopsy codes: 11102, 11103-11107
  - Skin only, does not include mucosa
- Site-specific biopsy codes still applicable
  - 11108

Biopsy Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11102</td>
<td>Tangential biopsy of skin, (eg, shave, scoop, saucerize, curette), single lesion</td>
</tr>
<tr>
<td>11103</td>
<td>Punch biopsy of skin, (including simple closure when performed), single lesion</td>
</tr>
<tr>
<td>11104</td>
<td>Punch biopsy of skin, including simple closure when performed, single lesion</td>
</tr>
<tr>
<td>11105</td>
<td>Incisional biopsy of skin lesion, (including simple closure when performed), single lesion</td>
</tr>
<tr>
<td>11106</td>
<td>Incisional biopsy of skin and subcutaneous tissue, each separate additional lesion</td>
</tr>
<tr>
<td>11107</td>
<td>Incisional biopsy of skin lesion and subcutaneous tissue, each separate additional lesion</td>
</tr>
<tr>
<td>11108</td>
<td>Biopsy of nail unit (plate, bed, matrix, hyponychium, proximal and lateral nail folds), each separate additional lesion</td>
</tr>
</tbody>
</table>

Definition: Procedure to obtain tissue solely for histopathologic examination

- Sampling of a lesion

You want to know what it is on histopathology, so you biopsy it

- Stratum corneum sampling by any method (scraping, tape stripping) is not a biopsy

Code Criterion is Based on Technique

Optimal tissue sampling: consider type of neoplastic, inflammatory or other lesion requiring tissue diagnosis

Three distinct techniques: three primary biopsy codes, three add-on codes

2019 Skin Biopsy Codes
Tangential biopsy Vs. Shave removal

**Tangential biopsy**
- **Intent:** obtain tissue sample for diagnostic pathologic examination
- **Instrument:** sharp blade, such as scalpel, flexible blade, curette
- **Depth:** may include epidermis only, or epidermis and dermis
- **Histopathologic tissue evaluation:** always done
- **Two codes only:** primary and add-on

**Shave removal**
- **Intent:** therapeutic removal of epidermal or epidermal-dermal lesion
- **Instrument:** removal with a sharp blade, such as scalpel, flexible blade
- **Depth:** not through dermis
- **Histopathologic tissue evaluation:** may be done
- **Code selection:** determined by site and lesion size

Tangential biopsy vs. Shave removal, examples

**Tangential biopsy**
- Biopsy of an inflammatory dermatosis with the shave technique
- Biopsy of a large atypical pigmented lesion (saucerization or scoop biopsy technique, into deep dermis)
- **Intent:** obtain an optimal tissue sample for histopathology

**Shave removal**
- Cosmetic shave removal of an elevated nevus
- Shave removal of irritated seborrheic keratosis, irritated nevus
- **Intent:** to completely remove the lesion; or to completely remove the noxious portion of lesion

Punch Biopsy (11104, 11105)

**Punch Biopsy Example**

**Punch defect:** through dermis

- **Excision of standing cones included**
- **Simple suturing included**

Incisional Biopsy Vs. Excision

**Incisional Biopsy**
- **Intent:** obtain tissue sample for diagnostic histopathologic examination
- **Instrument:** sharp blade (not a punch)
- **Depth:** full-thickness skin sample
- **Histopathologic evaluation:** always done
- **Two codes only:** primary and add-on

**Excision, benign or malignant**
- **Intent:** excision of entire lesion, with margins
- **Instrument:** sharp blade
- **Depth:** full-thickness, through dermis
- **Histopathologic evaluation:** always done
- **Code selection determined by:**
  - **Location**
- **Maximum excision diameter**

Incisional Biopsy Vs. Soft Tissue Biopsy

**Incisional Biopsy**
- **Intent:** obtain tissue sample for diagnostic histopathologic examination
- **Instrument:** sharp blade (not a punch)
- **Tissue sample:** full-thickness skin
- **Histopathologic evaluation:** always done
- **Two codes only:** primary and add-on

**Biopsy, Soft Tissue**
- **Intent:** sampling of tissues deep to skin: subcutaneous, subfascial, intramuscular
- **Instrument:** sharp blade
- **Tissue sample:** subcutaneous or subfascial or muscle
- **Skin may not be included**
- **Includes:** simple or intermediate repair
- **Histopathologic evaluation:** always done
- **Code selection determined by:**
  - **Location**
  - **Type of biopsy:** superficial or deep
2018 vs. 2019 Biopsy Coding

2018
• First biopsy: 11100
  ➢ each additional: 11101

2019
• First biopsy:
  11106: Incisional
  11104: Punch
  11102: Tangential
  ➢ each additional:
   11107: Incisional
   11105: Punch
   11103: Tangential

Biopsy Coding Hierarchies

Incisional biopsy 11106
- Additional incisional: 11107
- Additional punch: 11105
- Additional tangential: 11103

Punch biopsy 11104
- Additional incisional: 11107
- Additional punch: 11105
- Additional tangential: 11103

Tangential Biopsy 11102
- Additional incisional: 11107
- Additional punch: 11105
- Additional tangential: 11103

Single Technique Biopsy Coding Examples

Tangential
- Three tangential Biopsies: 11102, 11102x2
- Three punch Biopsies: 11104, 11105x2
- Two incisional Biopsies: 11106, 11107

Punch

Incisional

Multiple Biopsies, Different Lesions or Sites

• More than one biopsy with different techniques used for each additional lesion
• List the highest value base (primary) code first
• Additional biopsy add-on codes in order of highest to lowest value

Multiple Biopsies of Different Lesions or Sites

• Only one primary code is used, regardless if multiple biopsy techniques used
• When multiple biopsies are done, use one primary code and add-on code(s) appropriate to the additional biopsy techniques used
• Incisional biopsy (11106) is always primary to other biopsy techniques
• Punch biopsy (11104) is always primary when shave biopsy also performed
Multiple Techniques Biopsy Coding Examples

One incisional, one punch, two tangential
- 11106 (incisional)
- 11105 (punch)
- 11103x2 (tangential)

Two punch, one tangential
- 11104 (punch)
- 11105 (punch)
- 11103 (tangential)

One incisional, two tangential
- 11106 (incisional)
- 11103 (tangential)
- 11103 (tangential)

CMS 2019 Proposed RVUs

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>2018 Work RVUs</th>
<th>2018 Total Non-Facility RVUs</th>
<th>2019 Total Non-Facility RVUs</th>
<th>Medicare National Average Payment</th>
<th>Medicare National Average Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>11102</td>
<td>Tangential</td>
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<tr>
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<td>Tangential Add-On</td>
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<tr>
<td>11104</td>
<td>Punch</td>
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<td>11105</td>
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<td></td>
<td>Deleted Biopsy Add-On</td>
<td>.41</td>
<td></td>
<td></td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

National Correct Coding Edits

- Medically Unlikely Edits (MUEs) for the new biopsy codes have been determined
- Multiple procedures on the same date of service are still likely to be reduced under the multiple surgical reduction rule (MSRR)
  - Add-on codes need not be further discounted
  - However, payers can choose to discount payment for any reason in spite of CMS/NCCI guidelines

CMS Proposed Values for Skin Biopsy Codes - 2019

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>2018 Work RVUs</th>
<th>2018 Total Non-Facility RVUs</th>
<th>2019 Total Non-Facility RVUs</th>
<th>Medicare National Average Payment</th>
<th>Medicare National Average Payment</th>
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</thead>
<tbody>
<tr>
<td>11102</td>
<td>Tangential bx skin single lesion</td>
<td>NA</td>
<td>.66</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>11103</td>
<td>Tangential bx skin ea sep/addl</td>
<td>NA</td>
<td>.29</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<tr>
<td>11104</td>
<td>Punch bx skin single lesion</td>
<td>NA</td>
<td>.83</td>
<td>NA</td>
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<td>NA</td>
</tr>
<tr>
<td>11105</td>
<td>Punch bx skin ea sep/addl</td>
<td>NA</td>
<td>.45</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>11106</td>
<td>Incisional bx skin single lesion</td>
<td>NA</td>
<td>1.01</td>
<td>NA</td>
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<td>NA</td>
</tr>
<tr>
<td>11107</td>
<td>Incisional bx skin ea sep/addl</td>
<td>NA</td>
<td>.54</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

2019 NCCI Edits Examples

<table>
<thead>
<tr>
<th>Code</th>
<th>Modifier</th>
<th>Del/Med Allowed</th>
<th>Del/Med Applicable</th>
<th>Column 1</th>
<th>Column 2</th>
<th>Modifier</th>
<th>Del/Med Allowed</th>
<th>Del/Med Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>11102</td>
<td>+11102</td>
<td>1</td>
<td>11102</td>
<td>1</td>
<td>+11102</td>
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<td>11102</td>
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<tr>
<td>11104</td>
<td>+11104</td>
<td>1</td>
<td>11104</td>
<td>1</td>
<td>+11104</td>
<td>1</td>
<td>11104</td>
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</tr>
<tr>
<td>11106</td>
<td>+11106</td>
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</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 2019 MUE Edits/MAI Indicators

<table>
<thead>
<tr>
<th>HCPCS/CPT Code</th>
<th>Practitioner Services MUE Values</th>
<th>MUE Adjudication Indicator (MAI)</th>
<th>MUE Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>+11102</td>
<td>1</td>
<td>2 Date of Service Edit</td>
<td>Date of Service Edit</td>
</tr>
<tr>
<td>+11104</td>
<td>6</td>
<td>3 Date of Service Edit</td>
<td>Date of Service Edit</td>
</tr>
<tr>
<td>+11106</td>
<td>1</td>
<td>2 Date of Service Edit</td>
<td>Date of Service Edit</td>
</tr>
<tr>
<td>+11107</td>
<td>3</td>
<td>3 Date of Service Edit</td>
<td>Date of Service Edit</td>
</tr>
</tbody>
</table>
### MAI Impact on Claim Edit Rationale

<table>
<thead>
<tr>
<th>MAI</th>
<th>Claim Line Edit</th>
<th>Edit Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Claim Line Edit</td>
<td>Based on CPT code description and is not appealable.</td>
<td></td>
</tr>
<tr>
<td>2. Date of Service Policy</td>
<td>These are “per day edits based on policy”.</td>
<td></td>
</tr>
<tr>
<td>3. Date of Service Clinical</td>
<td>These are “per day edits based on clinical benchmarks”.</td>
<td></td>
</tr>
</tbody>
</table>

#### Questions/More Information

Faith McNicholas mcnicholas@aad.org
Peggy Eiden peiden@aad.org
Cynthia Stewart cstewart@aad.org

---

### Intermediate Repair

- Layered closure
- Undermining not required

---

### Complex Repair

- Layered closure
- “Extensive” undermining, retention sutures, scar revision, debridement (for traumatic lacerations, avulsions)
- Nothing is said in CPT about standing cone removal
- Excision of standing cones lengthens the line of closure
- Complex repair codes are stratified via location and length

---

### Complex Repairs: CPT 13100-13153

Excision of redundant skin triangles to generate a fusiform shape for repair does not make it a complex repair.
CPT®: "Sum of lengths of repairs for each group of anatomic sites."

Repair, complex, scalp, arms, and/or legs;

Complex Repairs: CPT 13100-13153

Retention Sutures are used to reinforce a single layer closure of atrophic, fragile skin that is unable to support buried dermal sutures.

Modifier 25: Undergoing Insurer Scrutiny and attempts at payment reductions

CPT®: Significant, separately identifiable evaluation and management service by the same physician or other qualified health care professional on the same day of the procedure or other service

- Patient's condition required a significant, separately identifiable E/M
- Service is above and beyond usual preoperative and postoperative care included in a procedure
- Substantiated by documentation that satisfies the relevant criteria for the respective E/M service to be reported
- E/M service may be prompted by the symptom or condition for which the procedure was provided
- Separate diagnoses are not required
- Service needs to be reasonable and necessary

What is Included in a procedural CPT® code?

- Evaluation of a specific lesion for which a procedure is done
- Decision to perform a minor surgical procedure (0 and 10 day global)
- Certain elements of history pertaining to the lesion for which a procedure is done
- Usual, uncomplicated preoperative evaluation
- Usual, uncomplicated postoperative care

An established patient comes in with a complaint of an asymptomatic, growing plaque on his nose. You generate a differential diagnosis of BCC, adnexal tumor or granulomatous disease. You proceed to biopsy the lesion.

You submit the following billing:

A) Biopsy, 11100 and E/M, 99213
B) Biopsy 11100
C) Biopsy 11100 and E/M 99213.25
D) Biopsy 11100 and E/M 99212.25
E) Biopsy 11100.59 and E/M 99213

Extensive undermining DOES NOT mean Any undermining
What is included in biopsy valuation?

**CPT 11100 (biopsy)**

**Pre-service:** one obtains a pertinent history including previous skin cancer, prior treatments, and sun protection. Indications for the biopsy, expected benefits, and a description of the procedure and its risks are discussed. Consent is obtained and the biopsy tray is prepared.

**Intra-service:** selection of the optimal biopsy site and lesion inspection and palpation, and then the biopsy procedure itself from start to bandaging.

**Post-service:** patient instruction on care and follow-up, charting, and communication with any referring physician.

You submit the following billing:

**Biopsy 11100**

Why only 11100?
The evaluation focused only upon the biopsied lesion. No other work beyond that included in the 11100 biopsy valuation was done.

---

What is included in procedure valuation?

**CPT 17260 -17286 (malignant lesion destructions)**

**Pre-service:** review of pertinent medical records data, followed by discussion of the treatment options and risks. Obtain informed consent and have the necessary procedure tray prepared.

**Intra-service:** the lesion is inspected, palpated, and its size, location, functional risks, and depth are recorded. Anesthetic is administered and the procedure is done.

**Post-service:** antibiotic ointment and any dressing are applied and pertinent instructions are given. Recurrence risks and the need for follow-up are discussed. Charting, any operative note report, and communication with a referring physician are included.

An established patient comes in with a complaint of an asymptomatic, growing plaque on his nose. You generate a differential diagnosis of BCC, adnexal tumor or granulomatous disease. You proceed to biopsy the lesion.

---

What is included in procedure valuation?

**CPT 17000 and 17110 series (destruction)**

**Pre-service (before the destruction is done) work:** includes a review of pertinent medical records data, a discussion of treatment choices, a review of risks of the treatment with the patient, obtaining informed consent, and preparation of necessary equipment.

**Intra-service work:** inspection and palpation of lesions to establish a diagnosis and to specify size, location, depth, and then the actual destruction with liquid nitrogen freezing.

**Post-service work:** application of any antibiotic ointment and dressings, if needed, and post-procedure patient and family instructions. Charting and any communication with a referring physician are included in this work.

Conclusion: all procedures have some built-in E&M component

- The procedure's E&M component must be separated from any additional E&M provided in order to determine qualification for .25 modifier use and the level of any additional E&M to be billed.

"Moreover, where the decision to perform the minor procedure is typically done immediately before the service, it is considered a routine preoperative service and a visit or consultation is not billed in addition to the procedure." Medicare Claims Processing Manual, Chapter 12, Section 40.1
You evaluate a new patient with a history of malignant melanoma. You take a history, do a review of systems, do a complete skin examination plus lips, oral mucosa, conjunctivae, palpate lymph node basins and identify a clinically atypical pigmented lesion on the arm that you excise.

A) Excision and repair codes + 99203 E/M code
B) Excision and repair codes only
C) Excision and repair + 99203.25 E/M code*
D) 99203 only, and schedule the excision for another day, as E/M done on same day as procedure is never covered

Why? Significant, separately identifiable, medically indicated (and documented) service was done beyond that inherent in the excision.

*Some Medicare contractors (e.g., Noridian) do not require appending .25 to a New patient E/M.

How to determine a level of E/M separate from that of a concurrently done procedure?

- Subtract all E/M included in the procedure from the total E/M done
- What is left determines level of potentially billable E/M
- Reminder: the separate service should be reasonable and necessary

You bill:

A patient is referred to you for Mohs surgery. You review pertinent history, evaluate a nasal biopsy-proven BCC and do a 3 stage Mohs excision. You refer the patient out for repair of the defect.

A) Mohs surgery first and 2-3 stages: 17311, 17312x2
B) 17311, 17312x2 and 99202.25
C) 17311, 17312x2 and 99202.57

"The initial evaluation focused upon the lesion being treated is usually included in the allowance for a minor surgical procedure." AAC "Audits on Modifier 25 are Coming" webinar 12/13/2017

Mohs surgery alone is a minor surgical procedure: 0 day global period

Most Common Modifiers Used During the Global Period

- 24: Unrelated E/M Service by the Same Physician or Other Qualified Health Care Professional During a Postoperative Period
- 25: Significant, Separately Identifiable E/M Service by the Same Physician Or Other Qualified Health Care Professional on the Same Day of the Procedure or Other Service
- 27: Decision for Surgery (refers to E/M service resulting in a decision to perform a 90 day global surgery the day of or day after the evaluation)
- 79: Unrelated Procedure or Service by the Same Physician or Other Qualified Health Care Professional During the Postoperative Period
- 88: Staged or Related Procedure or Service by the Same Physician or Other Qualified Health Care Professional During the Postoperative Period

Global Surgical Periods

0 Days: Minor Procedure
- Biopsy (11100…)
- Shave removal (11300 – 11313)
- Debridement (11000, 11011-42)
- Mohs. (17311 – 17315)

10 Days: Minor Procedure
- Destruction (17000 - 17286)
- Excisions (11400 – 11646)
- Repairs (12001 – 13153)

90 Days: Major Procedure
- Flaps
- Grafts
- Tissue Expanders
- Destruction of Vascular Proliferative Lesion (17006 – 08)
- Dermabrasion, Chemical Peel

No modifier is needed when an E/M or a surgical service is done at any day following a zero day global surgical procedure

Global Surgical Package

- Includes all normal/usual preoperative, intraoperative and postoperative services
- Includes postoperative services are limited to the global period
- Payment for the procedure includes usual services within the global period, including wound care/checks and suture removal
- The global period applies to both the surgeon and to physicians of the same specialty in a group practice who may do postoperative care for the patient
**Group Practice and Surgical Follow-up**

- When services are furnished by a physician of the same specialty within a group practice the services are considered part of the global surgical package. Separate coding/billing is not appropriate.
- If the patient were new to a physician of a different specialty within the group practice or the physician of any specialty were independent of the group practice, then an appropriate E/M office visit would be billable.


---

**Services included in Global Package**

<table>
<thead>
<tr>
<th>Included</th>
<th>Not Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Initial evaluation to determine 0 or 10 day global procedure need</td>
<td>• Initial evaluation to determine 90 day global surgery need</td>
</tr>
<tr>
<td>• Treatment of complications not requiring operating room care</td>
<td>• Treatment of complications in the operating room</td>
</tr>
<tr>
<td>• Postop visits related to surgery</td>
<td>• Visits unrelated to the diagnosis leading to the surgical procedure</td>
</tr>
<tr>
<td>• Pain management</td>
<td>• Additional treatment unrelated to the surgery</td>
</tr>
<tr>
<td>• Routine surgical site care:</td>
<td>• Staged procedures</td>
</tr>
<tr>
<td>— Dressing changes</td>
<td>— Sutures/Staples removal</td>
</tr>
<tr>
<td>• Pain management</td>
<td></td>
</tr>
</tbody>
</table>

---

**Medicare definition: Operating/Procedure Room**

“A place of service specifically equipped and staffed for the sole purpose of performing procedures”

<table>
<thead>
<tr>
<th>OR/Procedure Room</th>
<th>NOT OR/Procedure Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Room exclusively used and staffed for procedures/surgeries</td>
<td>• Patient examination room</td>
</tr>
<tr>
<td>• Laser suite</td>
<td>• Multisuite patient treatment room</td>
</tr>
<tr>
<td>• Your office procedure/surgery room if it meets the definition</td>
<td>• Any location not used exclusively for doing procedures/surgeries</td>
</tr>
</tbody>
</table>

Conclusion: If a postoperative complication requires surgical treatment in the office setting, and that treatment is done in a room used exclusively for procedures/surgeries, then that treatment is billable with an appended .78 modifier.

---

**Steps for Optimal Coding**

- Determine level of E/M service &/or Procedure type(s)
- Correlate ICD-10 diagnoses with CPT codes
- Select Modifiers if needed
- Document appropriately to justify billing

---

**CPT and ICD-10 Codes**

Example:

Established patient with history of melanoma, evaluated for several lesions Evaluation established diagnosis, treatment and plan for the following:

<table>
<thead>
<tr>
<th>Dx and Service</th>
<th>CPT Code</th>
<th>ICD-10 Code(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOD MM- inc, ICD, complete skin exam, nodal palpation, discussion</td>
<td>99213</td>
<td>B21.320 (Personal history MM); B21.303 (MM found)</td>
</tr>
<tr>
<td>Actinic keratoses</td>
<td>17000, 17003 (or 17006) [dermatol.]</td>
<td>L75.0</td>
</tr>
<tr>
<td>MCC, on back</td>
<td>17261 [dermatol., malignant, 0.6-1 cm]</td>
<td>D44.519</td>
</tr>
<tr>
<td>Asymptomatic, on chest</td>
<td>11100 [biopsy]</td>
<td>D44.519 [melanoma, uncertain behavior]</td>
</tr>
</tbody>
</table>

Append modifiers as appropriate

---

**Next step:**

- Modifier needed?
- If two or more procedures are done, which one(s) qualify for a modifier?
  - Which codes are primary (no modifier), and which qualify for a modifier?
- Multiple procedures: consult National Correct Coding Initiative (NCCI):
  [https://www.cms.gov/Medicare/Coding/NationalCorrectCodInitEd/index.htm](https://www.cms.gov/Medicare/Coding/NationalCorrectCodInitEd/index.htm)
  - Procedure-to-procedure (PTP or column 1/2) edits
  - Medically Unlikely Edits (MUE)
The purpose of the NCCI Procedure-to-Procedure (PTP) edits is to prevent improper payment when incorrect code combinations are reported. The NCCI contains one table of edits for physicians/practitioners and one table of edits for outpatient hospital services. The Column One/Column Two Correct Coding Edits table and the Mutually Exclusive Edits table have been combined into one table and include PTP code pairs that should not be reported together for a number of reasons explained in the Coding Policy Manual. The purpose of the NCCI MUE program is to prevent improper payments when services are reported with incorrect units of service.

NCCI PTP Example: Destruction codes

<table>
<thead>
<tr>
<th>Primary code</th>
<th>Secondary Code (append modifier)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Modifier allowed, both paired payable with modifier (59 &amp;/or 76)</td>
<td></td>
</tr>
</tbody>
</table>

NCCI PTP Example: Destruction/Biopsy

<table>
<thead>
<tr>
<th>Primary code</th>
<th>Secondary Code (append modifier)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Modifier allowed, both paired payable with modifier 59 &amp;/or 76</td>
<td></td>
</tr>
</tbody>
</table>

You freeze 5 actinic keratoses with liquid nitrogen, biopsy two atypical nevi, one on the back and the other, on the abdomen, and destroy a 1.2 cm wide superficial basal cell carcinoma on the chest with curetting and electrodessication.

Per NCCI PTP edits,
- 17000, 17004 are column 1 codes
- 17562 and 11100 are column 2 codes
- 11101 is not listed in column 2

Conclusion:
- 17000, 17004 are primary to both malignant destruction and to biopsy codes (and to shave removal codes, as well)
- Append .59 modifier to biopsy and malignant destruction codes paired with destruction of actinic keratoses
- Add-on codes (i.e., 11101, 17003) do not require a .59 modifier

8 stages of Mohs done on Medicare patient. Your MAC is likely to pay for:

A. All 8 stages, CPT 17311 and 17312x7
B. Only 4 stages, CPT 17311 and 17312x3
C. Only 5 stages, CPT 17311 and 17312x5
D. Only 6 stages, CPT 17311 and 17312x6
E. Only 7 stages, CPT 17311 and 17312x6
Answer: E, Only 7 stages

Why? NCCI Medically Unlikely Edits (MUE)

- Accessible on NCCI website.
- MUE table lists CPT codes, MUE value and MAI number (1, 2 or 3)

MUE for 17312 is 6, meaning 6 stages
MAI for 17312 is 3, meaning a date of service edit

When the MAI is 3, one may appeal an unpaid claim via a redetermination, and the appeal should be upheld as long as:
- The service was provided
- The service was correctly coded
- The service was medically necessary

Modifier 59 Definition

"Under certain circumstances, it may be necessary to indicate that a procedure or service was distinct or independent from other non-E/M services performed on the same day. Modifier 59 is used to identify procedures/services, other than E/M services, that are not normally reported together, but are appropriate under the circumstances."

Modifier 59, part 2

"However, when another already established modifier is appropriate it should be used rather than modifier 59. Only if no more descriptive modifier is available, and the use of modifier 59 best explains the circumstances, should modifier 59 be used."

(color accent added)

Practical -59 Modifier Guidelines

- Two or more procedures done during one patient encounter:
  - Look up NCCI edits
  - Determine whether both may be payable if a modifier is used
  - Determine the primary code (Column 1 in NCCI)
  - Determine the secondary code (Column 2 in NCCI)
    - If secondary code has a modifier indicator of 1, then a modifier can be used to bypass the NCCI edit
    - Append -59 &/or -76 modifier to secondary code

“Duplicate” procedures coding

- Modifier –76 should be appended to procedure(s) or surgical service(s) to indicate a repeat procedure/surgery was performed on the same day for patient management purposes.
  - eg. 11401, 11401.76
- Modifier –91 should be appended to laboratory procedure(s) or service(s) to indicate a repeat test or procedure performed on the same day for patient management purposes.
  - eg. 88305, 88305.91
Modifier .76 and .91 Use
• Two basal cell carcinomas destroyed: cheek and forehead, 0.7 and 0.6 cm diam.
  – Previously code:
    • 17281, 17281.59
    • New code: 17281, 17281.76
• Histopathology dx. for above lesions:
  – Basal cell carcinoma, cheek & BCC, forehead
  – Previously code:
    • 88305.26, 88305.26
    • New code: 88305.26, 88305.26.91

Correct -59 Modifier Use

<table>
<thead>
<tr>
<th>CPT</th>
<th>Modifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>99213</td>
<td>25</td>
</tr>
<tr>
<td>11100</td>
<td>59</td>
</tr>
<tr>
<td>11101</td>
<td></td>
</tr>
<tr>
<td>17004</td>
<td></td>
</tr>
</tbody>
</table>

Incorrect Modifier 59 Use

<table>
<thead>
<tr>
<th>CPT</th>
<th>Modifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>11100</td>
<td>59</td>
</tr>
<tr>
<td>17000</td>
<td>10</td>
</tr>
<tr>
<td>17003</td>
<td>10</td>
</tr>
</tbody>
</table>

According to the NCCI, 17000 is the Column 1 code and does not need a modifier. 11100 is in Column 2, and would be bundled into the 17000 code, resulting in no payment for the service, unless one uses a modifier appended to 11100. 17003 is an add-on code to 17000 and does not require a modifier.

Correct Modifier 59 Use

<table>
<thead>
<tr>
<th>CPT</th>
<th>Modifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>17000</td>
<td></td>
</tr>
<tr>
<td>17003</td>
<td></td>
</tr>
<tr>
<td>11100</td>
<td>59</td>
</tr>
</tbody>
</table>

MLN Matters® MM8863
• -59 is most used modifier
• “Associated with considerable abuse
• …and high levels of manual audit activity;
• …leading to reviews, appeals and even civil fraud and abuse cases.”

The CMS Reaction
• Educational initiatives
• Requirement for use of .76 and .91 in lieu of .59 in special circumstances
• Introduction of XE, XS, XP, XU modifiers

Medicare HCPCS Modifiers
- XE Separate Encounter, A Service That Is Distinct
- XS Separate Structure, A Service That Is Distinct
- XP Separate Practitioner, A Service That Is Distinct
- XU Unusual Non-Overlapping Service, The Use Of A Service That Is Distinct Because It Does Not Overlap Usual Components Of The Main Service
Please note that providers may continue to use the -59 modifier after January 1, 2015, in any instance in which it was correctly used prior to January 1, 2015. The initial CR establishing the modifiers was designed to inform system developers that healthcare systems would need to accommodate the new modifiers. Additional guidance and education as to the appropriate use of the new -X (EPSU) modifiers will be forthcoming as CMS continues to introduce the modifiers in a gradual and controlled fashion. That guidance will include additional descriptive information about the new modifiers. CMS will identify situations in which a specific -X (EPSU) modifier will be required and will publish specific guidance before implementing edits or audits.

MLN Matters® Number: SE1503 (February, 2015)
Related Change Request Number: BB63
MOHS RECONSTRUCTION- CONTOURS AND CARTILAGE

Christopher Weyer, DO, FAOCD, FACMS, FAAD
Dermatology and Plastic Surgery of Arizona

Mohs Surgery

- Developed by Fred Mohs - 1930s
- Microscopically controlled cancer removal
- Evaluation of 100% of the tissue margin
- Goal of removing the entire tumor w/o healthy surrounding tissue

- Indications
  - Locations: H&N, acral, genital
  - Tumor histology - poor diff, BSQ, infl, infil, infil, morph, micro nod
  - Recurrent tumors
  - Adjacent tumors
  - Size - >2cm trunk

Disclosures

KOL for Revision Skin Care.

The Mohs process and sectioning

Nasal Anatomy

- Most narrow portion of the nasal airway
- Formed by the caudal border of the ULC, the nasal septum, the nasal valves, and the inferior turbinate
- During inspiration, there is a drop in pressure due to an increased velocity of airflow (the Bernoulli Effect) this negative pressure may result in the collapse of the INV of a surgically compromised nose.
- The nasal septum is the only mobile surface and, therefore, the one most susceptible to collapse.
- External Nasal Valve - caudal to INV, entrance to the nose
Cartilage grafts

Male - 70s S/P mohs, deep defect with loss of sidewall support

Melolabial transposition flap

1 week suture removal

6 weeks post op

16 months post op
Female - 60s S/P mohs with deep alar defect, needs support of nasal valve and alar rim.

Nasal valve and rim stabilized.

Alar batten graft in place.

Melolabial Interpolation Flap

3 Week F/U- before flap takedown

3 Week Flap Takedown
3 Week Flap Takedown

Female-
50s, alar
defect
w/ collapse
of INV

Nasalis hinge flap- inferior base

Cartilage graft then nasalis to cover
Cartilage Grafts

- Evaluate the defect for collapse and support
- Antihelix or conchal (posterior)
- May need more than one graft - nasal valve, rim
- Watch for donor site hematoma, chondritis

Female - 50s, deep defect with loss of support of lateral ala, medial cheek, isthmus of the upper cutaneous lip

1 week bolster removal

1 month post op
Male 60s - s/p Mohs, loss of alar support, medial cheek, upper cutaneous lip

1 week bolster removal

9 Months
9 Months

Male 70s - S/P mohs, deep defect of the lateral nasal side wall, medial cheek

6 weeks post op

6 weeks post op
Use of Hinge Flaps

- Utilize local tissue
- Provides tissue volume/contour to the defect
- Cartilage and skin graft vascular supply
- Donor site contour change usually minimal

Male, 70s- S/P Mohs, deep defect of the sidewall and medial cheek

1 month postop
1 year post op

Female 80s- S/P Mohs, loss of alar rim, nasal tip, dorsum, sidewall

Does not want PFF - concern for wearing glasses.

- 3 Staged Melolabial flap
- Medial flap rotation
- Cartilage placed at 1st stage
- Lateral cheek-nasal lining
- Medial cheek-nasal cover

Stage 1- Flap Inset with Cartilage graft

1 week wound check

2 week wound check
4 weeks - stage 2, flap elevation and debulking/contouring of the ala, alar rim, nasal tip

1 week after stage 2

Stage 3 - prox flap takedown (3wk s/p stg2, 7wk total)

Proximal flap debulking and contouring
Flap inset

1 week S/P flap takedown

1 month S/P flap takedown

5 month s/p flap takedown
Female, 50s- multiple and recurrent tumors (all BCCs)

- Presented with 3 Bx + BCCs for Mohs
- Exam showed multiple additional lesions of concern
- Previous IPF on nose
- Not marked- BCC of the nasal sill and upper FH near hairline

Plan for regional tumor removal and reconstruction
- Lip and FH first- easier and smaller defects
- Nose/Nasal facial sulcus to follow and likely need a PFH flap
- Clear any tumors from donor site
- Staged over weeks/months

Female, 50s- multiple and recurrent tumors (all BCCs)

FH tumor at hairline-granulation
- Lip x3- adv flap with granulation

Adv Flap- incision carried just outside of NLF
- Allow for rotational restraint and prevent rotation
- Guiding sutures placed horizontally in medial defect prevent vertical scar contracture

1 Week at SR
SR at 1 wk. Allowed to heal for 1 mo before tx the nose

Mohs for 4 BCC on the nose
All cleared in 1-3 stages
Mold of nose made prior to removal- Paper tape

PFF flap planned with replacement of the tip and Lt sidewall
Small advancement of the check to recreate Nasofacial sulcus

Flap take down at 3 weeks

Flap Inset

S/P takedown, 2 months
• Have a plan, timeline—weeks and months
• Tumor removal/reconstruction by region and subunits
• Granulate where you can

Male 50s- s/p Mohs, alar rim defect

3 week flap takedown

3 week flap takedown
Interpolation Flaps

- Robust blood supply, less likely to have flap loss
- More Consistent results
- Allow for time of the repair,
- Make a good mold/template of defect
- Can stage- allows delayed cartilage grafts if needed or for flap revisions
References

- Grabb and Smith's Plastic Surgery 6th edition; chapter 51
- Nasal Reconstruction-Art and Practice; Fred Merck MD, 2009

Thank you!

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Upcoming Meetings:

2019 AOCD Spring Meeting
JW Marriott Orlando Grande Lakes
Orlando, FL
April 9 - April 13

2019 AOCD Fall Meeting
Omni Nashville Hotel
Nashville, TN
September 24 - September 28

2020 AOCD Spring Meeting
Hilton West Palm Beach
West Palm Beach, FL
February 17 - February 22

2020 AOCD Fall Meeting
Hyatt Centric Magnificent Mile
Chicago, IL
October 8 - October 11

2021 AOCD Spring Meeting
Hilton West Palm Beach
West Palm Beach, FL
February 22 - February 27

2021 AOCD Fall Meeting
Westin Denver Downtown
Denver, CO
October 7 - October 10