



Update in Dermatology

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MedNet21
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- Update in Psoriasis
- Update in Atopic Dermatitis
- New Uses for Older Therapeutics

No disclosures

Psoriasis: A Systemic Disease

- Chronic inflammatory disease with abnl keratinocyte proliferation
- Immune-mediated, primarily T-cells

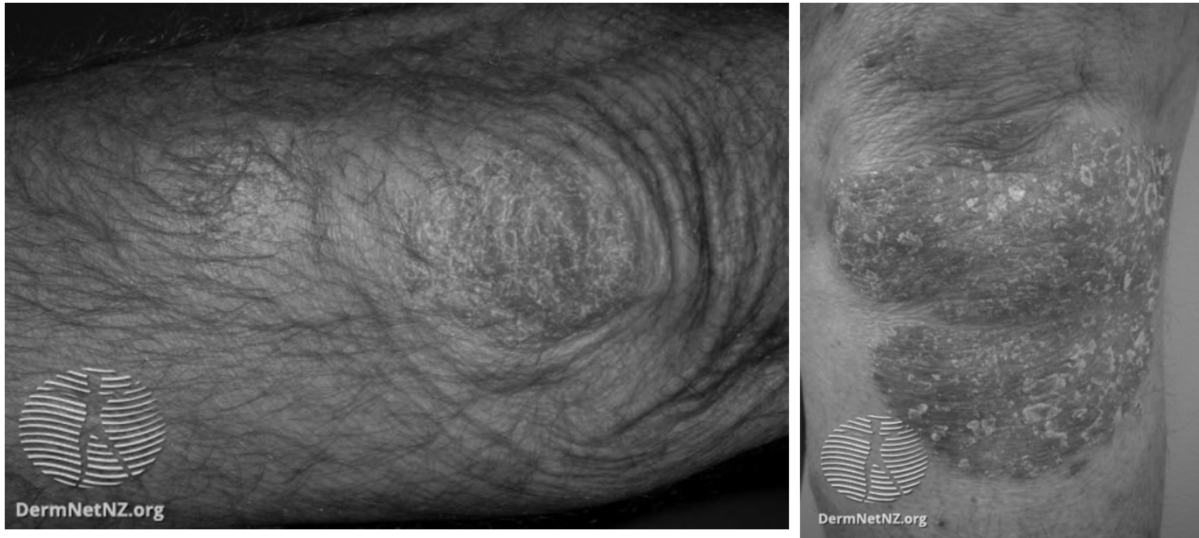
Classic Skin Findings

- Trunk, extensor surfaces of elbows and knees
- Well-demarcated, erythematous scaly patches
- Silvery scale

Classic Plaque Psoriasis



Classic Plaque Psoriasis



“Special Area” Skin Findings of Psoriasis

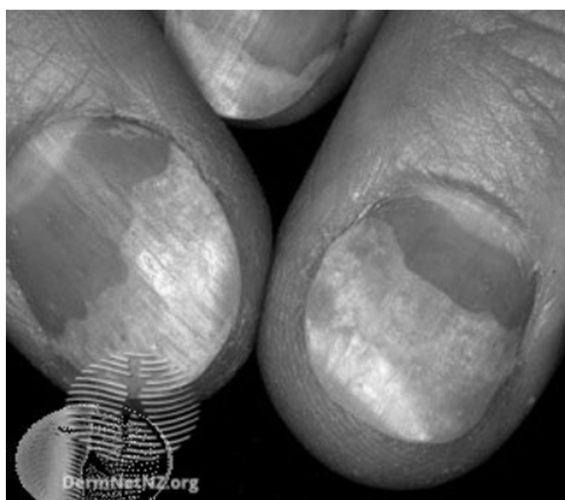
- Nail involvement
 - Nail Pitting: small pits in nails
 - Onycholysis
 - Nail Dystrophy with subungual keratosis
- Scalp and Facial involvement
- Palmoplantar (Hands and Feet)
- Axillae
- Genitalia

Nail Psoriasis

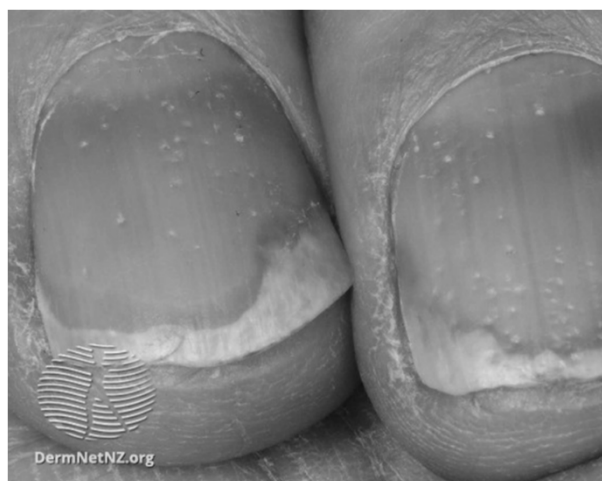


Nail Psoriasis

Onycholysis



Nail Pitting



Nail Psoriasis



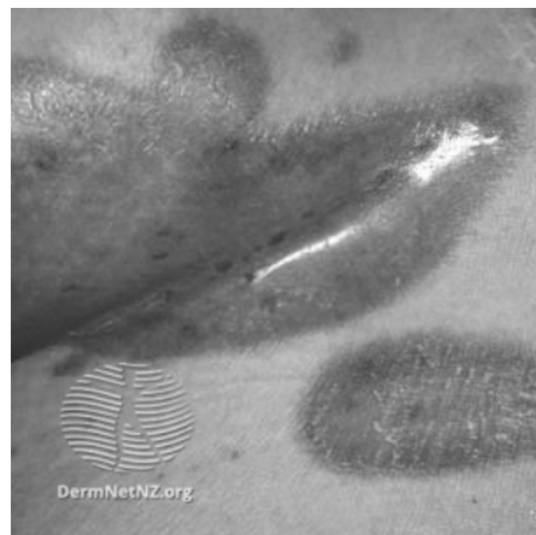
Palmoplantar Psoriasis



Palmoplantar Psoriasis



Psoriasis in Genital Region



Psoriasis in Genital Region



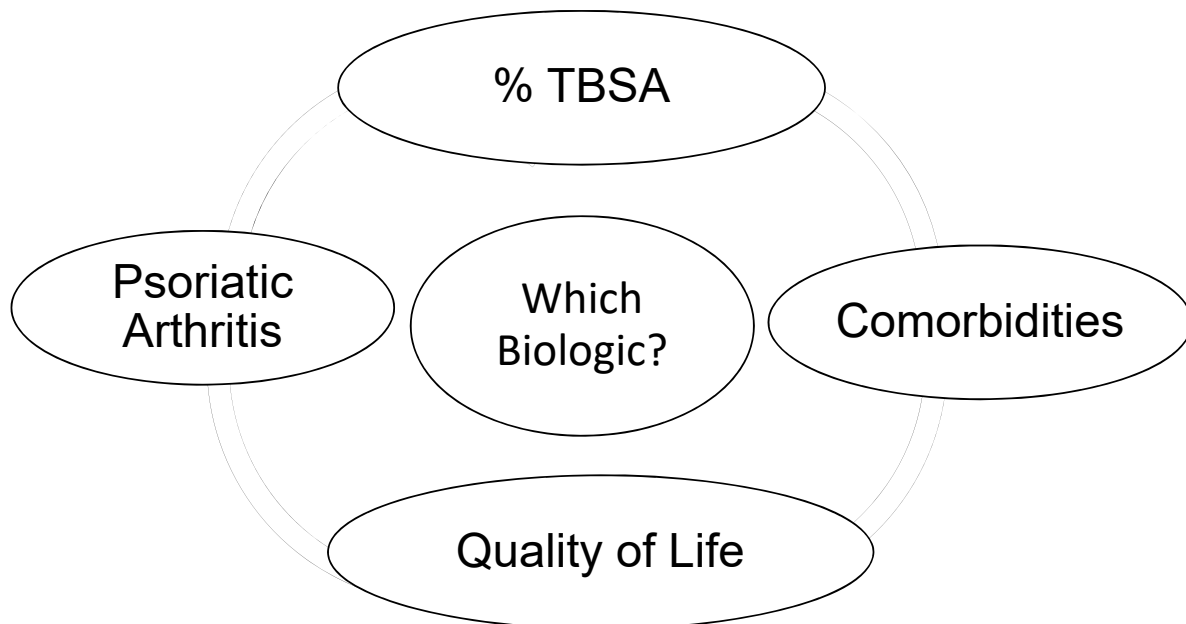
Psoriasis is a Systemic Disease

- Systemic disease with comorbidities
 - Psoriatic Arthritis
 - Cardiovascular Disease
 - Hypertension
 - Obesity
 - Diabetes
 - Inflammatory bowel disease

Dhana A, Yen H, Yen H, Cho E. All-cause and cause specific mortality in psoriasis: A systematic review and meta analysis. *JAAD* 2019; 80: 1332-43.

Psoriatic Arthritis

- Asymmetric oligoarthritis
 - Distal arthritis
 - Symmetric polyarthritis
 - Spondyloarthritis
 - Arthritis mutilans
-
- Joint pain (both large and small joints)
 - Swelling and morning stiffness



Factors to consider when choosing Tx

- % TBSA and disease severity
- Any Comorbidities?
- *Quality of life measures:*
 - Itching
 - Sleep deprivation
 - Anxiety and depression

PASI Score

- **P**сориаз **A**rea and **S**everity Index
 - Diagnostic assessment tool for disease severity
 - Response to therapy assessment tool
 - Areas of Involvement (hand equates 1%)
 - Head (10%): head, neck, and scalp
 - Upper extremities, including hands (20%)
 - Lower extremities, including buttocks, feet (40%)
 - Trunk (30%)
 - Severity (redness, thickness, scaliness) on scale 0-4
 - % Body surface area on scale 0-6

- **PASI score:** “standardized” clinical assessment
- **PASI response:** PASI 50/75/90
 - % of improvement in PASI score from baseline
 - PASI 75 responder: PASI score dropped 75%
- Newer meds with PASI 90-100 responders

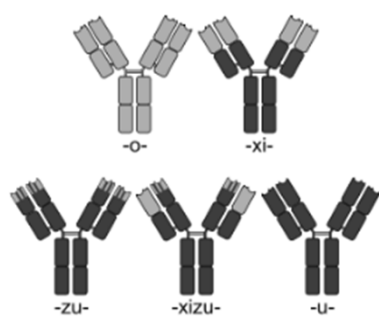
Available Treatments for Psoriasis

- Topical Treatments: topical steroids +/- topical calcipotriene
- Traditional Systemic: methotrexate and cyclosporine
- Phototherapy (Narrow Band Ultraviolet B/NBUVB)
- Alternative Oral: apremilast and acitretin
- Biologics

Biologics for Psoriasis

- Mechanism of action in inflammatory cascade
- % TBSA involved OR special area
- Psoriatic Arthritis? Other Comorbidities?
- Compliance
 - SQ vs IV
 - # of injections (weekly, biweekly, monthly, q3 months)
- Immunosuppression and need for lab monitoring
- Cost

Monoclonal Antibody Nomenclature



Sketches of chimeric (top right), humanized (bottom left) and chimeric/humanized (bottom middle) monoclonal antibodies. Human parts are shown in brown, non-human parts in blue.

Sketch from Wikipedia

Name	Antibody Origin	Examples
-XI-mab	Chimeric	Infl <u>i</u> ximab
-ZU-mab	Humanized	I <u>x</u> ekiz <u>u</u> mab C <u>e</u> rtoliz <u>u</u> mab
-U-mab	Human	Adalim <u>u</u> mab Ustekin <u>u</u> mab

TNF alpha Inhibitors	Brand Name Approved	Date	Maintenance Dosing after loading
Etanercept	Enbrel	2004	SQ once a week
Infliximab	Remicade	2006	IV every 8 weeks
Adalimumab	Humira	2008	SQ every other week
Certolizumab	Cimzia	2013	SQ every other week
IL12/23 Inhibitors			
Ustekinumab	Stelara	2009	SQ every 12 weeks
IL17 Inhibitors			
Secukinumab	Cosentyx	2015	SQ every 4 weeks
Ixekizumab	Taltz	2016	SQ every 4 weeks
Brodalumab	Siliq	2017	SQ every 2 weeks
IL23 Inhibitors			
Guselkumab	Tremfya	2017	SQ every 8 weeks
Tildrakizumab	Ilumya	2018	SQ every 12 weeks
Risankizumab	Skyrizi	2019	SQ every 12 weeks

Screening and Monitoring

- Baseline labs
 - CBC, CMP
 - *Check TB status* (Quantiferon-TB-Gold, PPD, CXR)
 - If +latent TB, then needs 9 months INH therapy
 - Serologies: HIV, Hep B and C, and VZV
- Routine maintenance
 - Annual TB tests
 - Q3-6 month CBC, CMP



LIVE VACCINES and BIOLOGICS

LIVE Vaccines

MMR

Chicken Pox

Small Pox

Yellow Fever

FluMist/Nasal Flu

Zostavax (exp 11/2020)

Immunizations

Up-to-date Immunizations: administer prior to start

- Live vaccines: wait 4 weeks to initiate tx
- Attenuated vaccines: wait 2 weeks to initiate tx
 - Inactive vaccines: influenza (shot), Shingrix

During therapy: LIVE vaccines contraindicated

- If needed, STOP biologic and wait 3 months to safely administer

How to choose which biologic to use? Remember these are immunosuppressants

Kaushik S and Lebwohl M. Psoriasis: Which therapy for which patient. Psoriasis Comorbidities and preferred systemic agents. *J Am Acad Dermatol* 2019; 80:27-40.

Psoriatic Arthritis

- First line: TNF inhibitors or IL 17 Inhibitors
- IL 23 inhibitors
- IL 12/23 inhibitors

FDA approved biologics for PsA

TNF alpha Inhibitors

- Etanercept (Enbrel)
- Infliximab (Remicade)
- Adalimumab (Humira)
- Certolizumab (Cimzia)

IL17 Inhibitors

- Secukinumab (Cosentyx)
- Ixekizumab (Taltz)

IL23 Inhibitors

- Guselkumab (Tremfya)

IL12/23 Inhibitors

- Ustekinumab (Stelara)



Systemic Therapies for Psoriasis

With underlying CAD

- TNF inhibitors
- IL 12/23 inhibitor

With underlying CHF

- IL17 inhibitors
- IL 23 inhibitors
- *TNF inhibitors are CONTRAINDICATED* in CHF

~~TNF INHIBITORS~~

Are biologics cardioprotective?

Treatment of Psoriasis With Biologic Therapy Is Associated With Improvement of Coronary Artery Plaque Lipid-Rich Necrotic Core: Results From a Prospective, Observational Study

Choi H, et al. *Circulation: Cardiovascular Imaging*, Volume 13, Issue 9, September 2020
<https://doi.org/10.1161/CIRCIMAGING.120.011199>

Association Between Early Severe Cardiovascular Events and the Initiation of Treatment With the Anti-Interleukin 12/23p40 Antibody Ustekinumab

Poizeau F et al. *JAMA Dermatol*. Published online September 9, 2020. doi:10.1001/jamadermatol.2020.2977

Psoriasis and Obesity

- Weight based dosing
 - Infliximab (5mg/kg/dose)
 - Ustekinumab (45 mg <100 kg; 90 mg > 100 mg)

Psoriasis and IBD

- TNF inhibitors (adalimumab, infliximab, certolizumab)
- IL 12/23 inhibitor (ustekinumab)
- AVOID IL17 inhibitors



Use of Biologics in Era of COVID

- Patient education regarding social distancing and mask wearing
- Continue biologic therapy for now
 - Discontinue if any s/sx of infection
- If pt develops active COVID infection
 - Discontinue biologic agent
 - Supportive care
 - Consider alternative therapeutic options (home phototherapy)
- Restart only after COVID-negative and fully recovered from infection

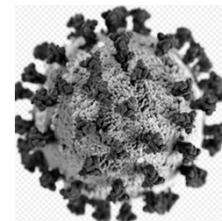


Illustration from CDC

Psoriasis and pregnancy

- Biologics have been used with normal outcomes (certolizumab)
- Consider alternative options (home UVB)

Psoriasis in pediatric population

- Ustekinumab and Ixekizumab: approved for > age 6
- Etanercept: approved for > age 4
 - Remember immunizations in this age group!

Atopic Dermatitis

- Chronic inflammatory disease: “the itch that rashes”
- upregulation of Type 2 T helper cells
- Significant pruritus
- Traditional treatment aimed at improved skin barrier function
 - Emollients
 - Topical steroids
 - Short-term immunosuppressants for severe disease

Atopic Dermatitis



Atopic Dermatitis



Dupilumab

- Fully human monoclonal Ab that inhibits IL4 and IL13
- FDA approved for moderate-severe AD
 - 2017- FDA approved for adults
 - 2019- FDA approved for adolescents (ages 12-17)
 - 2020- FDA approved for children ages 6-11
- Loading dose and SQ injections every 2 weeks
- Well tolerated, minimal drug interactions
- SE
 - Injection site reactions
 - Ocular: conjunctivitis

Eczema Treatment Tips

- Patient education
- Moisturize with ointment twice daily
 - Look for CERAMIDE emollients: replace “bricks and mortar”
- Daily baths
 - Avoid harsh soaps: fragrance-free, perfume-free
 - 10-15 min, warm (not hot) water
 - Dilute bleach or dilute VINEGAR baths to decrease Staph on skin
- For recalcitrant or rapid rebound: ?allergic contact? Patch test!

Are sunscreens toxic to the environment?

HAWAII SUNSCREEN BAN

- Ban the sale of oxybenzone and octinoxate by 2021 unless by MD rx with goal of protecting coral reefs
- Coral reefs are dying (coral reef bleaching)
- Multi-factorial issue but *climate change* with increase in water temperature likely has greater impact on environment
- 90% top-rated sunscreens contain oxybenzone
- Better alternative: “Reef Safe Sunscreen”
 - MINERAL sunscreens
 - Sun protective clothing

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What is Sun Protective Factor (SPF)?

- Measures UVB protection only (not UVA)
- Direct measurement of how much time protected vs unprotected skin takes to burn when exposed to sunlight
- Mineral sunscreens, “natural ingredients”
 - Opaque, thicker in consistency, harder to rub in
 - Less likely to cause irritation (not chemically based)

TITANIUM DIOXIDE
ZINC OXIDE
- Chemical sunscreens: chemically based ingredients
 - Easier to rub in, more convenient to apply
 - Can cause skin irritation and rashes, esp in sensitive skin

Avobenzone
Oxybenzone
Octinoxate
Octisalate

Sunscreen Tips

- Broad spectrum coverage
 - UVA and UVB coverage
- SPF 50+ for high sun exposure, SPF 30+ for daily use
- Water-resistant
- Minimum of 2 ounces (2 shot glasses) to cover areas that are sun-exposed
- Must apply at least 30 min before heading outside
- Reapply every 2 hours
- Water-resistance lasts 40-80 minutes
- Check expiration dates: buy new every season

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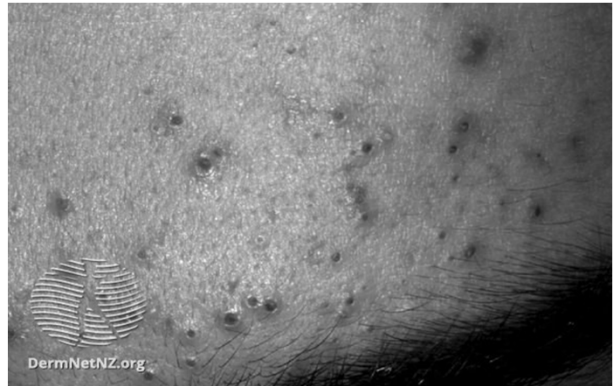
Find the one that you like that works for you



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Comedonal Acne

- Cleanser
 - salicylic acid or benzoyl peroxide OTC wash
 - Sulphur soap
 - Sodium sulfacetamide+/-Sulphur cleanser
- Topical retinoid
 - Adapalene 0.1% gel OTC
 - Tretinoin 0.025% → 0.05% → 0.1%
 - Start slow (BIW), warn about dryness
 - If oily: gel; If more sensitive: cream



Acne in different skin types



Female Acne



Inflammatory Acne Treatment Algorithm

- Cleanser + Retinoid
- Topical antibiotic with combo benzoyl peroxide
 - Avoid topical antibiotic monotherapy
- If needed, add 3 months of oral antibiotic

- If no improvement, consider hormonal option for females
- If severe, no improvement, or not sustained improvement
 - Referral to Dermatology: ISOTRETINOIN

Spironolactone

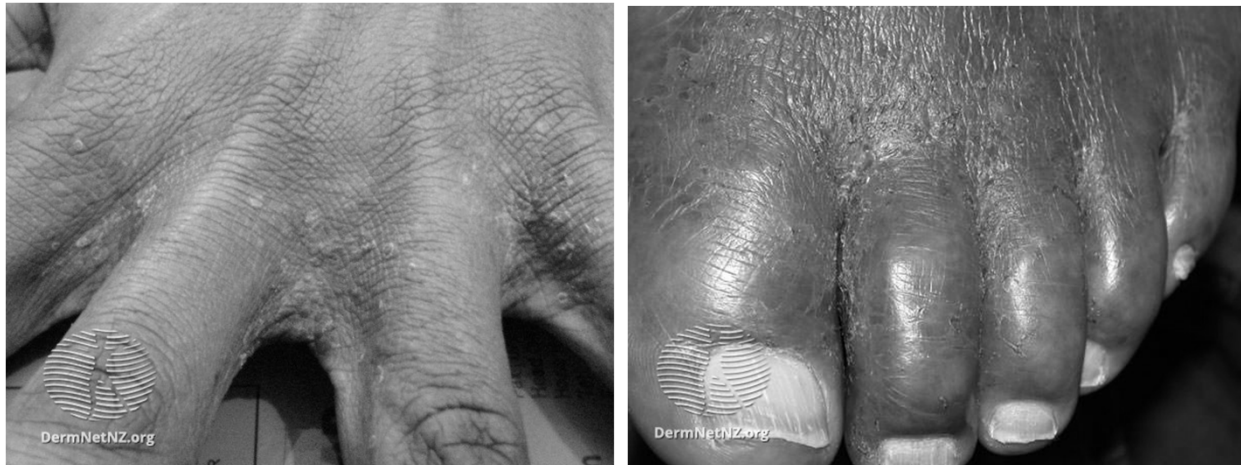
Approaches to limit systemic antibiotic use in acne: Systemic alternatives, emerging topical therapies, dietary modification, and laser and light-based treatments

Barbieri J MD, Spaccarelli N MD, et al. *JAAD* Vol 80; Issue 2, Feb 2019: 538-549

- Anti-androgenic effect with ↓ sebum
- Effective in female patients with hormonal component to acne
- Safe choice for patients who decline, cannot tolerate, or have contraindications for OCPs
- Avoid in pts with renal insufficiency (can lead to hyperkalemia)
- No increased risk of cancer (including no increased risk of breast cancer)
- Start 50 mg daily (can titrate up to 200 mg/day, most avg 100 mg/day)
 - Do not use in pregnancy or lactation

I'm itching all over, esp at night...





Scabies

- Permethrin
 - Apply all over from neck down, including under nails and in groin/genital area; leave on 6-8 hours
 - Reapply in 1 week
- Ivermectin (off-label for adults)
 - Anti-parasitic
 - Topical option
 - For adults: Oral option 200 mcg/kg, repeat in 1 week
 - Dispensed in 3 mg tabs: 3-6 tabs depending on weight
 - Not used for pregnant or lactating women or kids < age 6 or < 15 kg

Topical Ivermectin 1%

- Anti-inflammatory properties
- Effective in
 - Papulopustular rosacea
 - Seborrheic dermatitis
 - Perioral dermatitis
- Singular monotherapy (Soolantra)
- Compounded with metronidazole



Conclusion

Psoriasis is a systemic disease

- Monitor for heart disease, hyperlipidemia, diabetes
- Biologics as effective systemic tx

Atopic dermatitis

- Tx targets repair of skin barrier
- Systemic biologics (dupilumab) for tx

Using older therapeutics in new ways

- Spironolactone for female hormonal acne
- Topical ivermectin for seb derm and oral ivermectin for scabies

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Melanoma in the Primary Care Setting

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Disclosures

- None

Melanoma in the Primary Care Setting

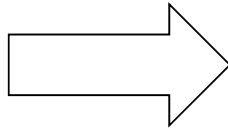
- Epidemiology of melanoma
- Screening for melanoma
- Assessing a skin lesion
- Prevention strategies

Epidemiology of melanoma

- **Incidence is increasing**
 - Reasons for this are not entirely clear
 - UVR exposure?
 - Life expectancy?
 - Socioeconomic status?
 - Over-diagnosis?
 - Previous underreporting?

Screening for melanoma

- **USPSTF recommends against screening general population** for skin cancer with total body skin exam (TBSE)
- Referring a targeted population for screening is likely best
- Johnson, Leachman et al screening recommendations:
 - Adults **ages 35-75** with **1 or more of the following risk factors** should be screened at least annually with TBSE to detect both melanoma **and** non-melanoma skin cancers



Johnson, Leachman et al screening recommendations

- Personal history
 - Personal history of **melanoma, actinic keratosis, or keratinocyte carcinoma (SCC)**
 - **CDKN2A carrier** (or carrier of other high penetrance mutation including CDK4, MITF, BAP1, p14 ARF, TERT, POT1, ACD, TERF2IP, BRCA2, PTEN)
- **Immunocompromised** either from disease or medications
- **Family history of melanoma** in 1 or more family members

Johnson, Leachman et al screening recommendations

- Physical features
 - **Light skin** (Fitzpatrick I-III)
 - I: always burns, never tans
 - II: usually burns, tans minimally
 - III: sometimes mild burn, tans uniformly
 - **Blonde or red hair**
 - **Greater than 40 total nevi**
 - **Two or more atypical nevi**
 - **Many freckles**
 - **Severely sun-damaged skin**
- UVR overexposure
 - History of **blistering or peeling sunburns**
 - History of **indoor tanning**



Source: CDC PHIL - melanoma

Assessing a skin lesion

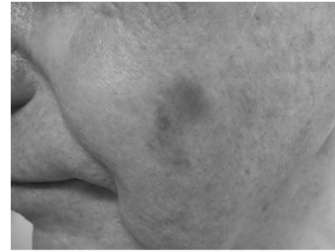
- ABCDEs of melanoma
 - **A**symmetry
 - **B**order irregularity
 - **C**olor that is not uniform
 - **D**iameter greater than 6 mm
 - **E**volving – size, shape, or color



Source: CDC PHIL - melanoma

Assessing a skin lesion

- ABCDE limitations – it's usually not so obvious!
 - **Amelanotic** and **early stage** lesions
 - **Seborrheic keratoses** are very common benign lesions and are also often pigmented and can meet ABCDE criteria
 - **Non-melanoma skin cancer** is more common and less likely to be pigmented and meet these criteria



Author: Omar Bari, Philip R. Cohen - (CC BY 3.0)



Author: James Heilman, MD - (CC BY-SA 3.0)

Assessing a skin lesion

- **Gross appearance is not everything**
 - Is it a new lesion?
 - Is it growing/changing?
 - Does it itch or bleed?
 - What do the patient's other skin lesions look like?
 - What is the patient's age and risk factors?
 - What does it look like on dermoscopy?
- In summary, it can be hard to know what is worrisome
- Over 50% of melanomas are self-detected
 - **Do you have a new or changing skin lesion?**

Biopsying a lesion to rule out melanoma

- Remove **entire lesion**, ideally with **1 mm margins**
- Punch biopsy or deep shave biopsy
- Pitfalls
 - Transection of melanoma
 - Pathology interpretation
 - How to approach a 'dysplastic nevus' after biopsy
 - Degree of atypia and wording of pathology report matter



Author: Brimstone - (CC BY-SA 3.0)

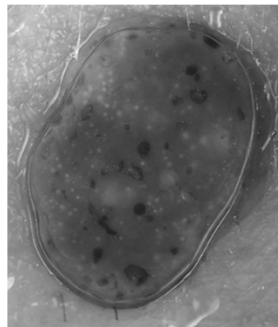
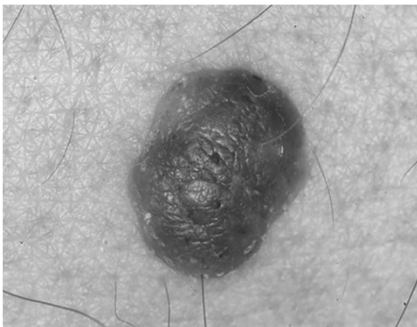
Dermatologic tools

- **Dermoscopy**
- **Full body photography**
- **Confocal microscopy**
- Future: Augmented intelligence?

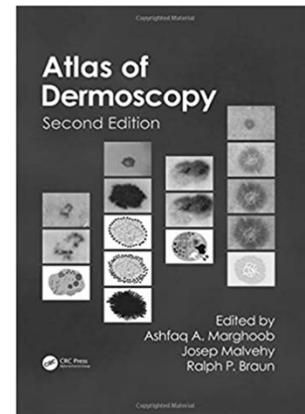


Dermoscopy

- Dermatologists receive training during residency
- Popular in-depth, multi-day training courses open to primary care providers
 - Mayo Clinic Scottsdale
 - Memorial Sloan Kettering



Source: NIH



Prevention strategies: practical advice for patients

- Sunscreen
 - At least **SPF 30**
 - **Broad spectrum** (UVA and UVB ray protection)
 - **Water-resistant**
 - Reapply **every 2 hours** or after swimming/sweating
- Avoid sun during peak hours (10a – 2p)
- Sun protective clothing

Sunscreen

- **FDA** issued a **proposed rule** in 2019
 - Generally recognized as safe and effective (GRASE)
 - **Zinc oxide**
 - **Titanium dioxide**
 - Not GRASE (these aren't present in legal US sunscreens)
 - PABA
 - Trolamine salicylate
 - Requesting more information
 - Commonly used in US: ensulizole, octisalate, homosalate, octocrylene, octinoxate, oxybenzone, avobenzone
 - Not commonly used in US: cinoxate, dioxybenzone, meradimate, padimate O, sulisobenzene