Update in Dermatology

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MedNet21
Center for Continuing Medical Education

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

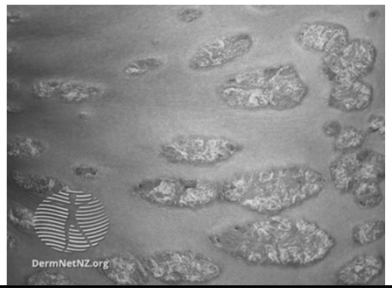
No disclosures

Psoriasis: A Systemic Disease

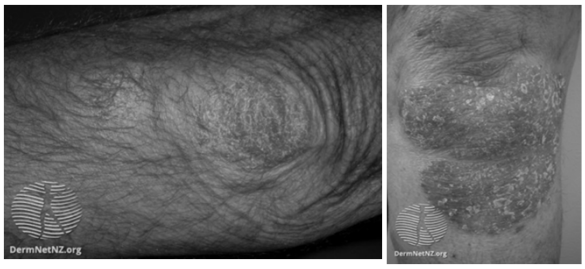
- Chronic inflammatory disease with abnl keratinocyte proliferation
- Immune-mediated, primarily T-cells

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

Classic Plaque Psoriasis



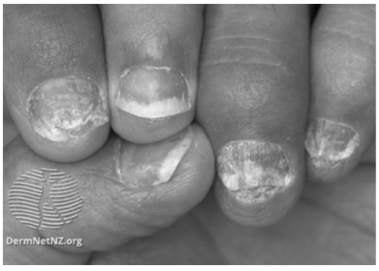
Classic Plaque Psoriasis



"Special Area" Skin Findings of Psoriasis

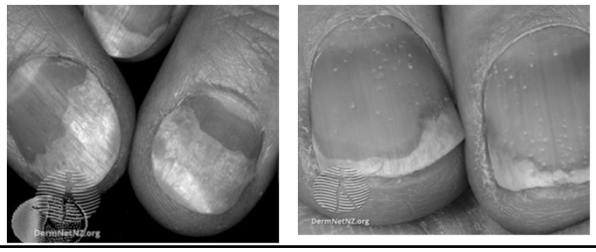
- Nail involvement
  - Nail Pitting: small pits in nails
  - Onycholysis
  - Nail Dystrophy with subungual keratosis
- Scalp and Facial involvement
- Palmoplantar (Hands and Feet)
- Axillae
- Genitalia

Nail Psoriasis

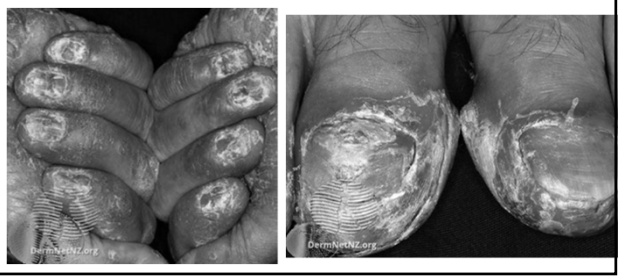


Nail Psoriasis

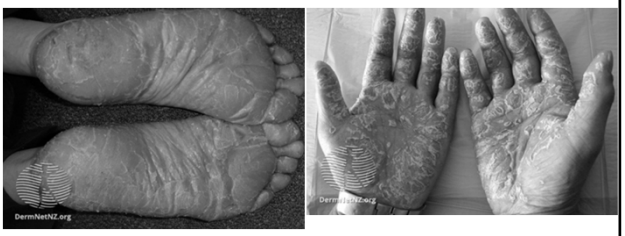
Onycholysis **Nail Pitting**



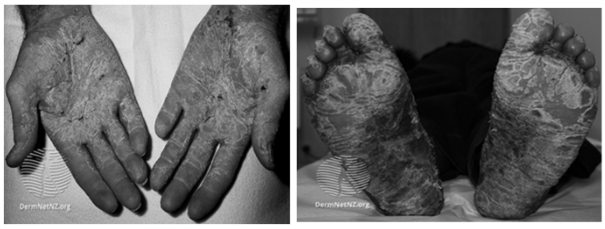
Nail Psoriasis



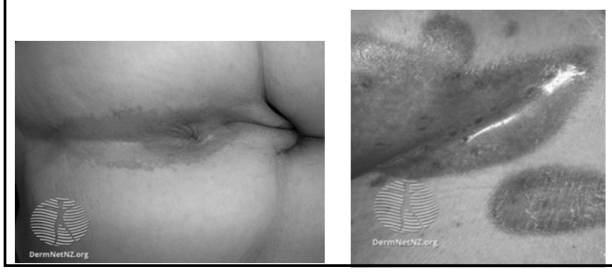
Palmoplantar Psoriasis



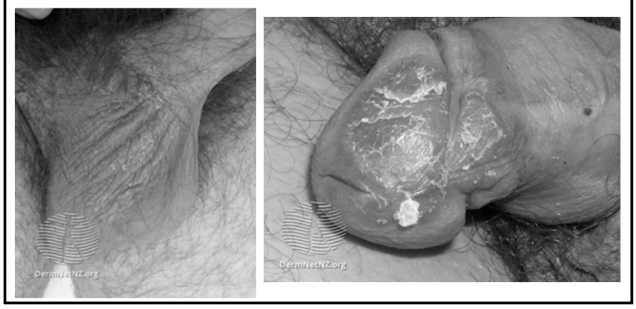
Palmoplantar Psoriasis



Psoriasis in Genital Region



Psoriasis in Genital Region



Psoriasis is a Systemic Disease

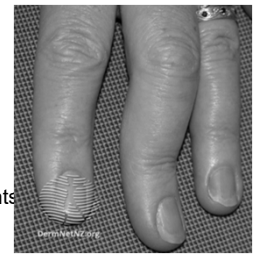
- Systemic disease with comorbidities
  - Psoriatic Arthritis
  - Cardiovascular Disease
  - Hypertension
  - Obesity
  - Diabetes
  - Inflammatory bowel disease

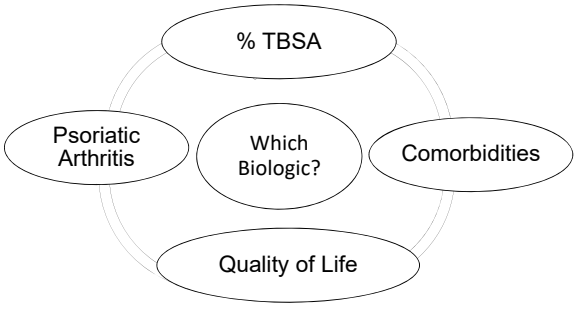
Dhana A, Yen H, Yen H, Cho E. All-cause and cause specific mortality in psoriasis: A systematic review and meta analysis. *JAAD* 2019; 80: 1332-43.

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**soriasis **A**rea and **S**everity **I**ndex
  - 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

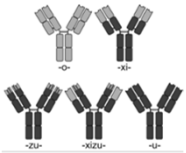
Available Treatments for Psoriasis

- 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.

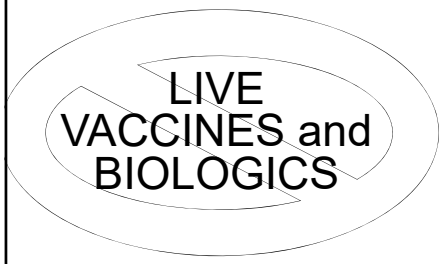
Sketch from Wikipedia

Name	Antibody Origin	Examples
-XI-mab	Chimeric	Infli<u>xi</u>mab
-ZU-mab	Humanized	Ixeki<u>zu</u>mab Certoli<u>zu</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
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

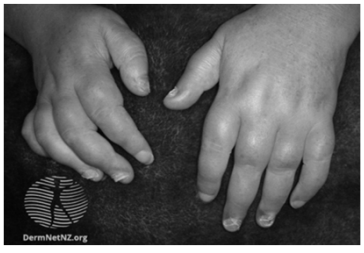
FDA approved biologics for PsA

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

~~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

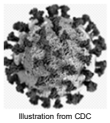


Illustration from CDC

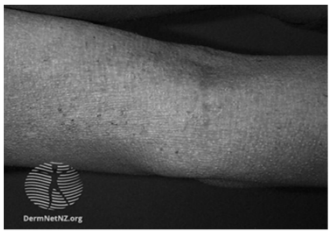
Psoriasis and pregnancy
- Biologics have been used with normal outcomes (certolizumab)
- Consider alternative options (home UVB)

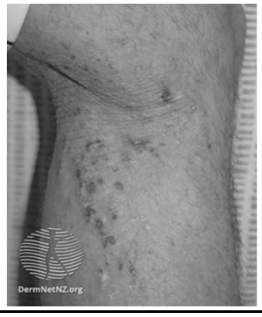
Psoriasis in pediatric population
- Ustekinumab and Ixekizumab: approved for > age 6
- Etanercept: approved for > age 4
  - Remember immunizations in this age group!

Atopic Dermatitis

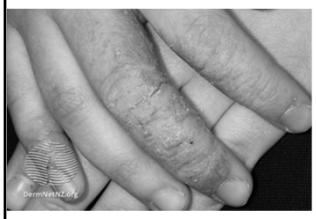
- Chronic inflammatory disease: “the itch that rashes”
- upregulation of Type 2 T helper cells
- Significant pruritus
- Traditional treatment aimed at improved skin barrier function
  - Emollients
  - Topical steroids
  - Short-term immunosuppressants for severe disease

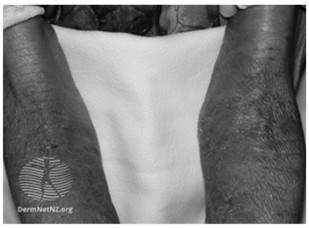
Atopic Dermatitis





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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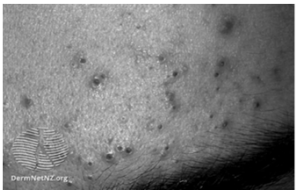
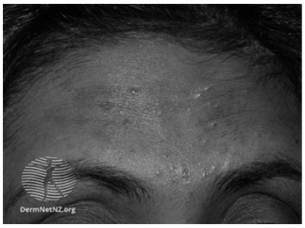
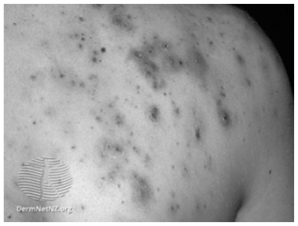
Comedonal Acne

- 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

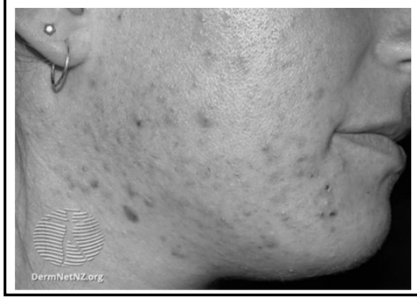


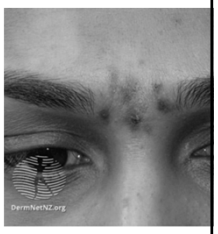
Acne in different skin types





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

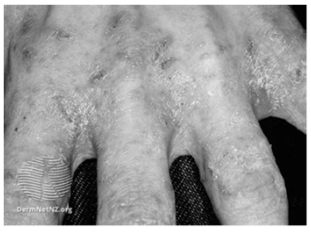
Spironolactone

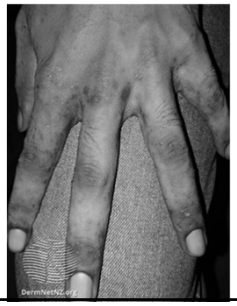
Approaches to limit systemic antibiotic use in acne: Systemic alternatives, emerging topical therapies, dietary modification, and laser and light-based treatments

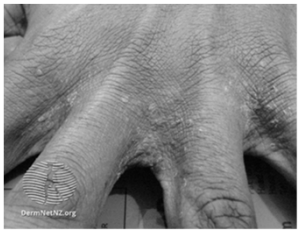
Barbieri J MD, **Spaccarelli N** MD, et al. *JAAD* Vol 80; Issue 2, Feb 2019: 538-549

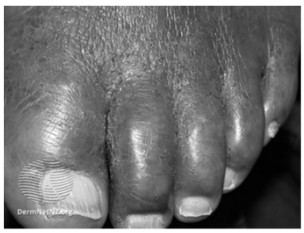
- Anti-androgenic effect with ⇩ sebum
- Effective in female patients with hormonal component to acne
- Safe choice for patients who decline, cannot tolerate, or have contraindications for OCPs
- Avoid in pts with renal insufficiency (can lead to hyperkalemia)
- No increased risk of cancer (including 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…







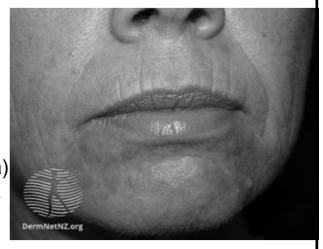


Scabies

- 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

Email: Susan.Massick@osumc.edu
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Melanoma in the Primary Care Setting

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MedNet21
Center for Continuing Medical Education

The Ohio State University
Wexner Medical Center

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

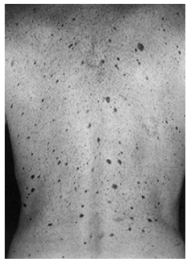
- **USPSTF recommends against screening general population** for skin cancer with total body skin exam (TBSE)
- Referring a targeted population for screening is likely best
- Johnson, Leachman et al screening recommendations:
  - Adults **ages 35-75** with **1 or more of the following risk factors** 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

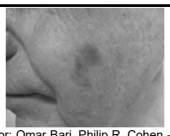
Assessing a skin lesion

- 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

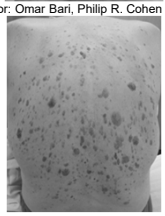
Source: CDC PHIL - melanoma

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)



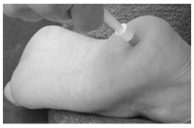
Author: James Heilman, MD - (CC BY-SA 3.0)

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



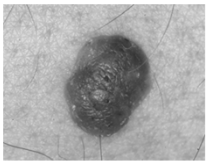
Author: Brimstone - (CC BY-SA 3.0)

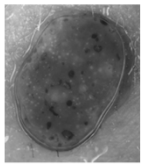
Dermatologic tools

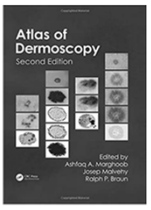
- **Dermoscopy**
- **Full body photography**
- **Confocal microscopy**
- Future: Augmented intelligence?

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, sulisobenzone