Top Dermatologic Issues in Primary Care

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EXPLORE HEALTHCARE SUMMIT

OU Health | Stephenson Cancer Center

Disclosure

- I have served as a consultant for Castle Biosciences
- I have served as a consultant for Aegle Therapeutics

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Goals of today's talk

- Review the morphologic range of dermatologic disease
- Emphasize dermatologic diagnoses in primary care setting
- NOT to review the entirety of relevant dermatology
- Emphasize the essential role of a biopsy in making a diagnosis

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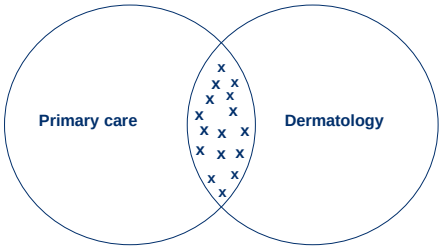
Scope of this talk



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Our why:

- **"Skin conditions are the most common reason for a new presentation to a primary care physician"***

*Roux E Le, Edwards PJ, Sanderson E, Barnes RK, Ridd MJ. The content and conduct of GP consultations for dermatology problems: A cross-sectional study. *Br J Gen Pract.* 2020;70(699):e723–30.

Grada et al. J Clin Aesthet Dermatol. 2022 May; 15(5): E82–E86.

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A quick tour through the world of dermatologic morphology

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Describing Lesions

- Size
- Color
- Primary Lesion Type
- Secondary Lesion Type (if present)
- Configuration
- Location

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Lesion Types

Primary

Changes in the skin directly caused by the disease process.

Secondary

Changes in the skin caused by external forces (scratching, trauma, infection, or the healing process).

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Primary Lesions

Macule	Bulla
Patch	Pustule
Papule	Wheal
Plaque	Telangiectasia
Nodule	Cyst
Tumor	Comedones (open & closed)
Vesicle	

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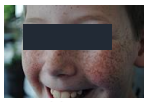
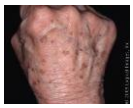
Macule **< 1cm flat, non-palpable, change of skin color.**

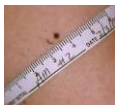
Examples



Freckles
(Ephilides)



Solar
Lentigines



Junctional
Nevus

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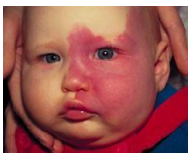
Patch **> 1cm flat, non-palpable, change of skin color.**

Vitiligo



Port Wine
Stain

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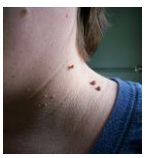
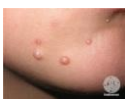
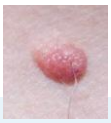
Papule **< 1cm superficial, raised, palpable lesion with distinct borders**



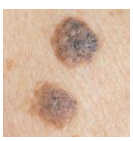
Skin Tags
(Acrochordons)



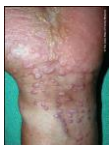
Molluscum
Contagiosum



Intradermal nevus



Seborrheic
keratoses



Lichen
Planus

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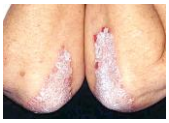
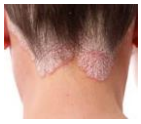
Plaque >1 cm raised, flat-topped, palpable lesion greater than 1 cm in diameter.

Psoriasis

Atopic Dermatitis

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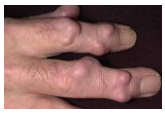
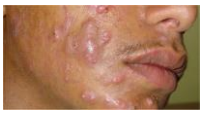
Nodule – Firm lesion less than 1 cm in diameter. It can be located in epidermis, dermis, or subcutaneous tissue. Increased depth differentiates nodules from papules.



Rheumatoid Nodules



Nodular Acne

Lipoma

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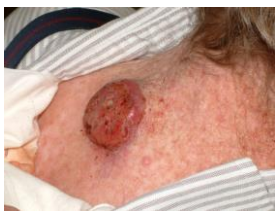
Tumor – Solid mass in skin or subcutaneous tissue > 2 cm.



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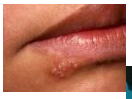
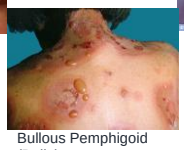
Fluid filled sacs:

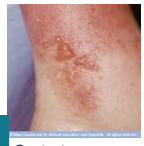
< 1 cm → Vesicle
> 1 cm → Bulla



Herpes Simplex (vesicle)



Bullous Pemphigoid (Bulla)



Contact Dermatitis

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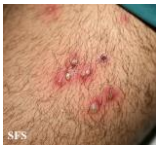
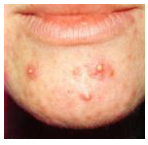
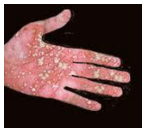
Pustule – vesicle containing "puss" which is neutrophil-rich. Can be sterile or infectious.



Folliculitis



Acne



Pustular psoriasis

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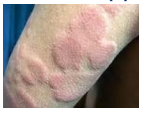
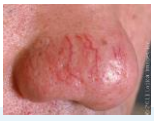
Wheal – Edema in upper dermis.



Urticaria

Telangiectasia – Dilated superficial blood vessel.



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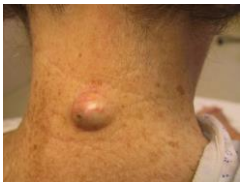
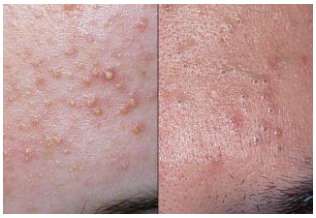
Cyst – Cavity containing fluid, solid or semi-solid material



Epidermal Inclusion Cyst

Comedones – A plug of keratin or sebum within the dilated orifice of a hair follicle (non-inflammatory)



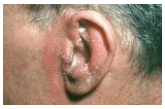
Closed “whitehead” Open “blackhead”

Secondary Lesions

- Scale
- Excoriation
- Lichenification
- Fissure
- Erosion
- Ulcer
- Crust
- Atrophy
- Purpura
- Hyper/Hypo-pigmentation

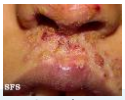
Scale – Flakes or plates of desquamated stratum corneum

Seborrheic Dermatitis



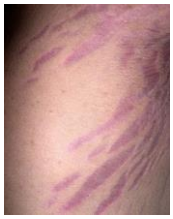
Xerosis

Crust – Dried plasma or exudates.



※ Impetigo

Atrophy – Thinning or absence of epidermis, dermis, or subcutaneous fat.



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Lichenification – **Thickening of epidermis with exaggerated skin lines. Usually from chronic scratching/rubbing.**

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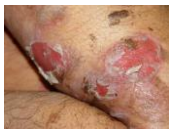
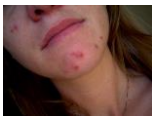
Erosion – Loss of part or all of the epidermis.



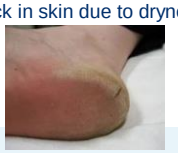
(Pemphigus Vulgaris)

Ulcer – Loss of epidermis and dermis due to necrosis.

Excoriation – Loss of superficial epidermis due to trauma.
(ie: scratching, picking)

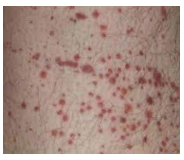


Fissure – Crack in skin due to dryness.

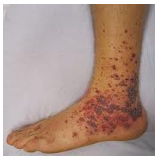


Petechiae, Purpura, & Ecchymosis -
Non-blanchable bleeding in skin.

Size: petechiae < 3 mm
purpura 3 mm – 1 cm
ecchymosis > 1 cm



Petechiae

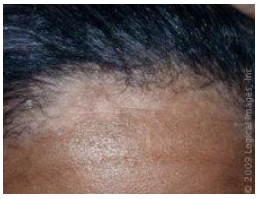


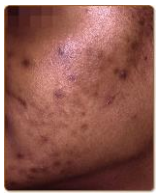
Palpable Purpura

Ecchymosis

Hypo/ Hyper-pigmentation

Secondary lightening or darkening of the skin.





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Skin Configurations

Annular	Disseminated/Generalized
Linear	Confluent
Grouped	Reticulated
Serpiginous	
Arcuate	

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Annular: **Ring shaped**

Tinea
Corporis

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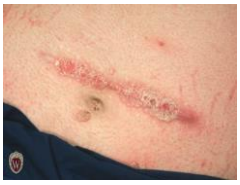
Linear: In a line.



Koebner's Phenomenon

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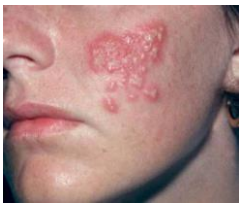
Grouped: Lesions that are clustered together.



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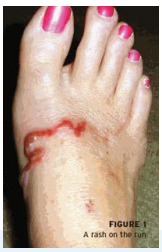
Serpiginous: wavy or "snake-like" in appearance.



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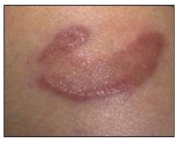
Arcuate: crescent or “half-moon” shaped



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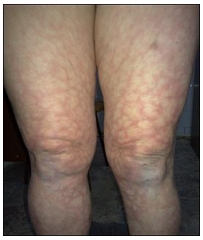
Reticular: lesions with a “net-like” arrangement.



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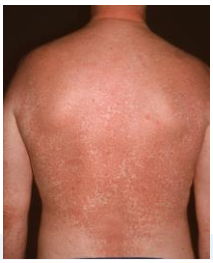
Disseminated/Generalized: Describes a lesion that is usually localized that has spread



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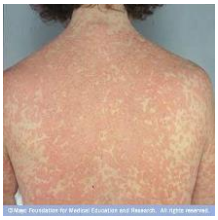
Confluent: running together



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Location

- Intertriginous
- Photodistributed
- Palmar/Plantar
- Dermatomal
- Symmetrical
- Blaschko's Lines

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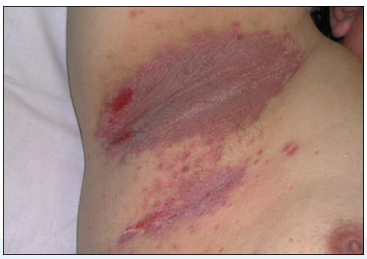
Intertriginous: Area where two skin surfaces touch or rub together.



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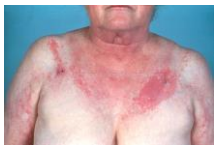
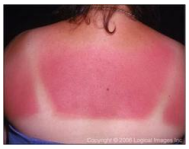
Photodistributed: in areas exposed to sunlight.

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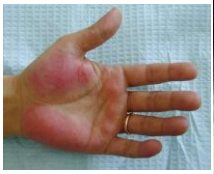
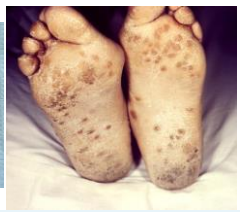
Palmar/Plantar: relating to the palm of the hand or sole of the foot.

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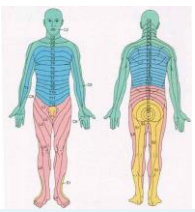
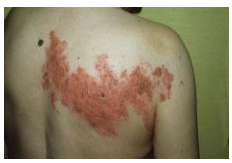
Dermatomal: corresponding to a dermatome of the body.

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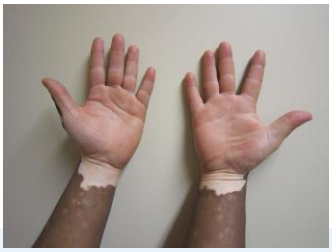
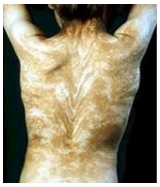
Symmetrical: Made up of exactly similar parts facing each other or around an axis



Blaschko's Lines: skin lines that trace the migration of embryonic cells.



What are the most common derm diagnoses in primary care?

Study in 2022: on the National Ambulatory Medical Care Survey (NAMCS) between 2007 and 2016, the most recent years available:

- The NAMCS is an ongoing survey which provides objective information about the use of ambulatory medical services in the United States.
- The survey is conducted annually by the National Center for Health Statistics (NCHS) at the Centers for Disease Control and Prevention (CDC).
- The NAMCS surveys a large, generalizable sample of physicians and non-physician providers and has achieved high response rates of up to 77%.

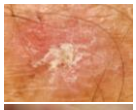
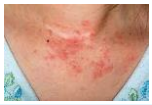
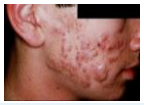
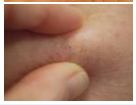
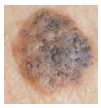
Ahn CS, Allen MM, Davis SA, Huang KE, Fleischer AB, Feldman SR. The National Ambulatory Medical Care Survey: A resource for understanding the outpatient dermatology treatment. J Dermatolog Treat. 2014;25(6):453–458.

Arafa AE, Anzengruber F, Mostafa AM, Navarini AA. Perspectives of online surveys in dermatology. J Eur Acad Dermatol Venereol. 2019;33:511–520.

Grada et al. J Clin Aesthet Dermatol. 2022 May; 15(5): E82–E86.

The most common skin diagnoses in primary care

- In the population-based, cross-sectional analysis using the National Ambulatory Medical Care Survey between 2007 and 2016:
  - The five most common skin diagnoses among all medical specialties were
    - contact dermatitis
    - acne vulgaris
    - actinic keratosis
    - “benign neoplasm” of the skin
    - epidermoid cyst

Grada et al. J Clin Aesthet Dermatol. 2022 May; 15(5): E82–E86.

Other “Top” Dermatologic Issues *for* Primary Care

- Identify a skin malignancy
- Identify eczematous, psoriasiform, lichenoid, and drug-induced conditions
- Identify potential autoimmune connective tissue diseases
- Identify autoimmune bullous dermatoses

- Barriers to sampling the skin in primary care
  - Requires proper set up, equipment for procedures, photography/ triangulation of lesions, proper sample containers (ex. Michels media for direct immunofluorescence).

- Delay in referral / wait times for patients to be seen by dermatology
- Delay in diagnosis and treatment

A bit of a deeper dive into

The most common issues

- Acne vulgaris
- Epidermoid cyst
- “Benign” neoplasms of the skin
- Actinic keratosis
- Contact dermatitis

Other top issues

- Cutaneous malignancy
  - Basal cell carcinoma
  - Squamous cell carcinoma
  - Melanoma
- Refractory inflammatory dermatoses
  - Eczematous
  - Psoriasiform
  - Lichenoid
- Autoimmune connective tissue diseases
  - Ex. cutaneous lupus
- Autoimmune bullous diseases
  - Ex. bullous pemphigoid


The top most common

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Acne vulgaris vs rosacea – diagnosis

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Acne vs Rosacea

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Acne vulgaris vs rosacea – treatment

Acne

- Daily wash with benzoyl peroxide-containing wash (Ex. CeraVe with benzoyl peroxide) or salicylic acid wash
- Topical clindamycin solution, gel, or lotion
- Daily retinoid (ex. OTC adapalene gel, or tretinoin creams) – a pea-sized amount only across entire face at night
- Oral medications: doxycycline 100 mg BID (or minocycline) for up to 1 month, can consider refills for flares
- Hormonal driven: start with spironolactone 50 mg daily, increase to 100 mg daily as tolerated (consider checking potassium; warn of side effects; not for use in woman trying to get pregnant)
  - Also consider topical Winlevi (clascoterone) – androgen receptor inhibitor

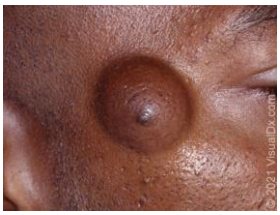
Rosacea

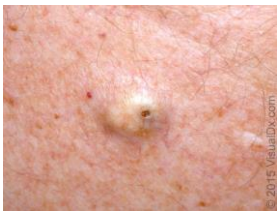
- Start topical metronidazole gel
  - If fails, consider topical ivermectin (Soolantra)
- Dermatologist: can perform lasers (example PDL to target hemoglobin in telangiectasias)
- Wash with sensitive skin cleaners (Cetaphil, CeraVe, Vanicream, etc).
- Can consider long-term, low dose doxycycline 50 mg daily, or 40 mg Oracea (slow-release)
- Can consider vasoconstrictors (topical brimonidine – a2 adrenergic receptor agonist)
- Identify and reduce triggers as much as possible (alcohol, spicy foods, heat, stress, etc)
- Refer to ophthalmology if ocular involvement

Isotretinoin for severe cases

52

Epidermoid inclusion cysts - diagnosis



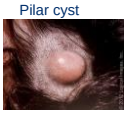


Beware of the ”cyst” – if deeper with no punctum, it may not be a “cyst”

53

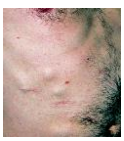
Epidermoid inclusion cysts - differential

Pilar cyst

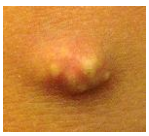


Dermoid cyst

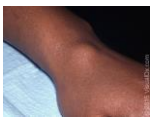
Lipoma



Pilomatricoma



Ganglion cyst



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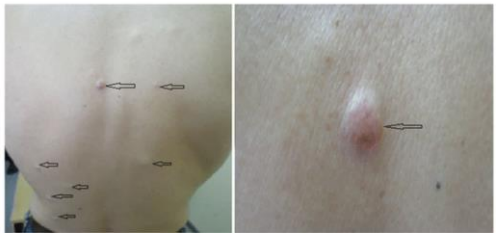
Cysts? Unfortunately not.



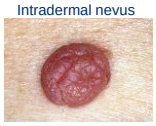
Pajaziti, L., Hapçiu, S.R., Dobruna, S. et al. Skin metastases from lung cancer: a case report. BMC Res Notes 8, 139 (2015). https://doi.org/10.1186/s13104-015-1105-0

55

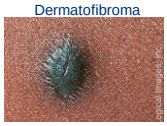
Benign neoplasms of the skin (examples)

Acrochordon/skin tag

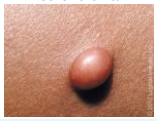
Intradermal nevus



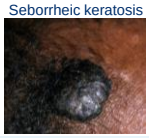
Dermatofibroma



Neurofibroma



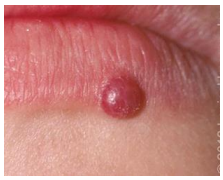
Seborrheic keratosis



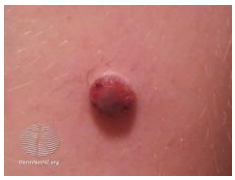
Seborrheic keratosis

56

"Pyogenic granuloma" (lobular capillary hemangioma) vs other?



Lobular capillary hemangioma



Spitzoid melanoma

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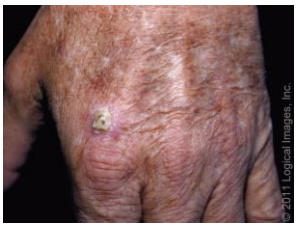
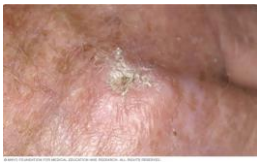
Actinic keratoses





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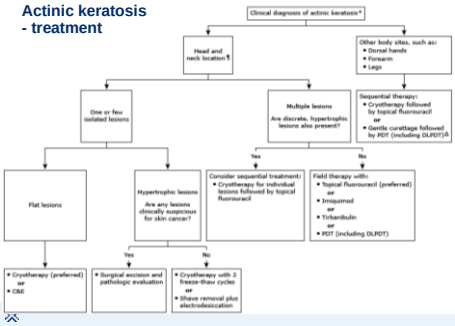
Actinic keratosis - treatment



In office treatment with liquid nitrogen

freezing time 5 to 10 seconds or more, depending upon lesion size and thickness, with the "ice ball" extending at least 1 mm beyond the clinical margin of the lesion

single freeze-thaw cycle is adequate for thin lesions, while a double freeze-thaw cycle is required for thicker lesions

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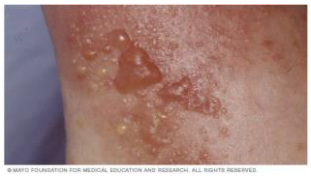
Contact dermatitis - diagnosis



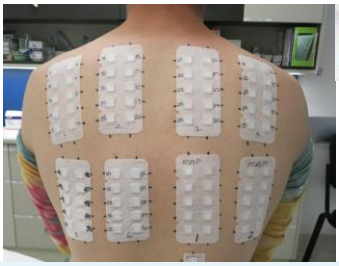
- Common contact allergens include plant allergens, metals, fragrances, acrylates, medicaments, and preservatives.

History and geometric distribution are important

Useful resource: Contact Dermatitis Institute (www.contactdermatitisinstitute.com)

60

Contact dermatitis – treatment/ avoidance



www.contactdermatitisinstitute.com

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The other “Top” issues

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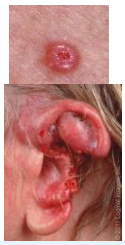
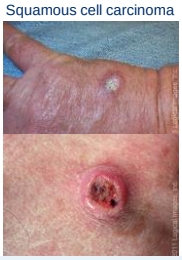
Skin cancer – The “big 3” – diagnosis - clinical

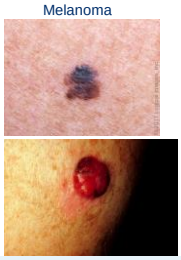
Basal cell carcinoma



Squamous cell carcinoma



Melanoma



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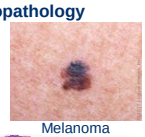
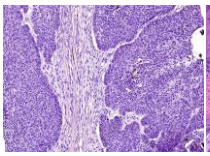
Skin cancer – The “big 3” – diagnosis - dermatopathology

Basal cell carcinoma

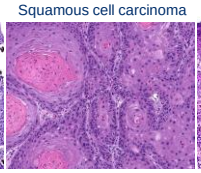
Squamous cell carcinoma



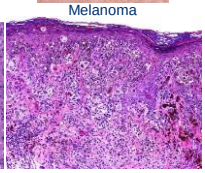
Melanoma



Ber-EP4+



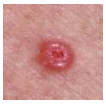
P40 +, Ber-EP4 -

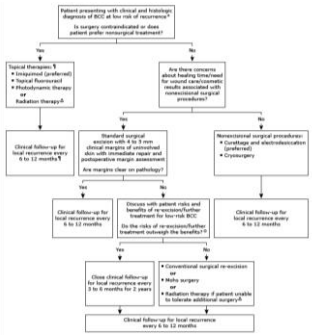


Sox-10+, PRAME+

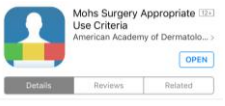
64

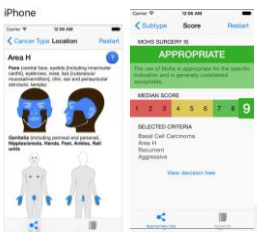
Skin cancer/BCC - treatment





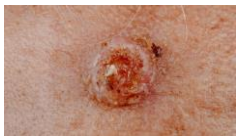
Appropriate Use Criteria for Mohs

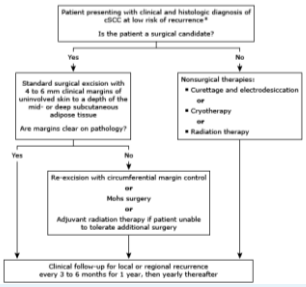




66

Skin cancer/SCC - treatment





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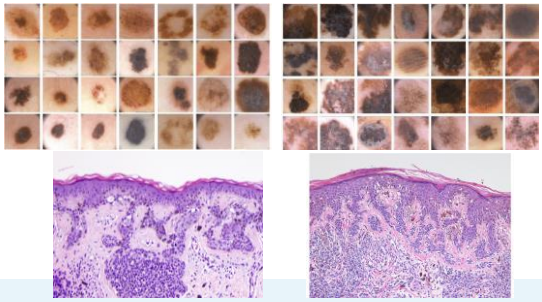
The melanocytic diagnostic dilemma



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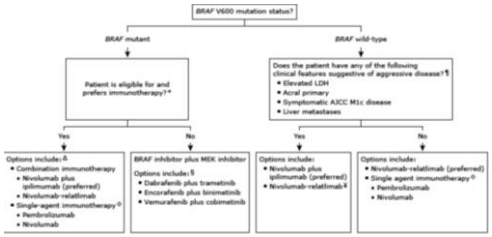
Melanoma- staging

Definition of Primary Tumor (T) - AJCC 8th Edition

T Category	Thickness	Ulceration status
Tis (melanoma *in situ*)	Not applicable	Not applicable
T1	≤1.0 mm	Unknown or unspecified
T1a	<0.8 mm	Without ulceration
T1b	<0.8 mm	With ulceration
	0.8–1.0 mm	With or without ulceration
T2	>1.0–2.0 mm	Unknown or unspecified
T2a	>1.0–2.0 mm	Without ulceration
T2b	>1.0–2.0 mm	With ulceration
T3	>2.0-4.0 mm	Unknown or unspecified
T3a	>2.0–4.0 mm	Without ulceration
T3b	>2.0–4.0 mm	With ulceration
T4	>4.0 mm	Unknown or unspecified
T4a	>4.0 mm	Without ulceration
T4b	>4.0 mm	With ulceration

Gershenwald, Scolyer, et al. Melanoma. In Amin, M.B., Edge, S.B., Greene, F.L., et al. (Eds.) AJCC Cancer Staging Manual. 8th Ed. New York: Springer; 2017

Melanoma- treatment



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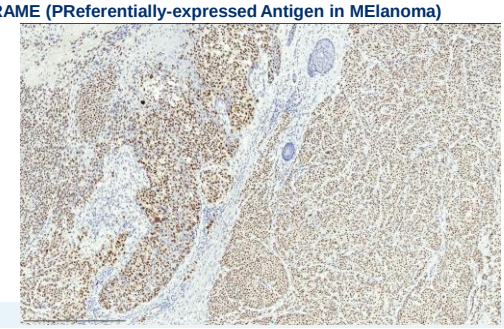
PRAME (PReferentially-expressed Antigen in MElanoma)



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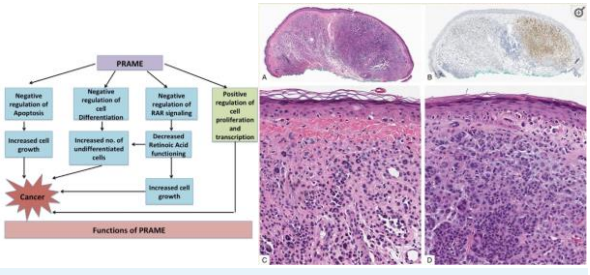
PRAME in melanoma



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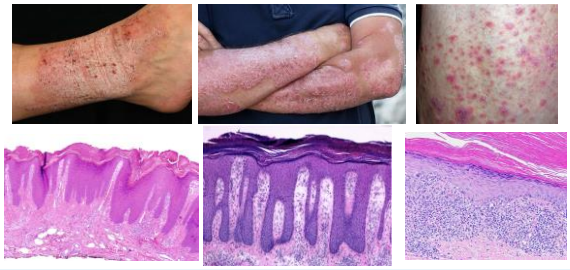
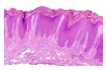
Eczematous vs psoriasiform vs lichenoid - diagnosis



73

Eczema / atopic dermatitis - treatment



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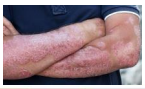
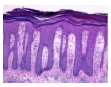
Psoriasis – treatment - biologics





Biologic	Other Compatible Conditions	Contraindications	Dosing	Approx. Cost (First Year)	Common Adverse Reactions (>10%)	Efficacy - Primary Outcome and Long-term Outcome*
Adalimumab (Humira) TNFi	Pregnancy Breastfeeding PsA Crohn's/UC**	Active TB or other severe infections Malignancies Hepatitis B Demyelinating disease Heart failure**	Every 2 wks (SC)*	$21,599*	Injection site rxn Headache Skin rash Antibody Development URTI/Other infections*	PASI 75 @ Week 16: 71-79% Loss of adequate response† @ Week 52: 16%*
Certolizumab pegol (Cimzia) TNFi	Crohn's Disease PsA Pregnancy Breastfeeding*	Active TB or other severe infections Heart failure*	Every 2 wks (SC)*	$18,271*	Headache Nausea Antibody development URTI/Other infections*	PASI 75 @ Week 16: 71-80% % of PASI 75 responders maintained until Week 48: 89-98%**
Etanercept (Enbrel) TNFi	PsA Pregnancy Breastfeeding*,**,§	Hypersensitivity to etanercept Patients at risk of sepsis syndrome*	Twice weekly for 3 mos, then once weekly (SC)*	$21,983*	Injection site rxn Headache Skin rash URTI/Other infections*	PASI 75 @ Week 12: 47-49% PASI 75 @ Week 96: 57%*
Infliximab (Remicade) TNFi	Crohn's/UC PsA Pregnancy Breastfeeding*,**,§	Severe infections* Heart failure*	IV Infusion at 0, 2, and 6 wks, then every 8 wks after*	$30,000*	Infusion rxn Headache Antibody development Gastrointestinal symptoms URTI/Other infections*	PASI 75 @ Week 10: 75-80% PASI 75 @ Week 30: 51-81%**
Biosimilar Infliximab (Inflectra) TNFi	Crohn's/UC PsA/AS/RA*	Severe infections Heart failure Pregnancy Breastfeeding*	IV Infusion at 0, 2, and 6 wks, then every 8 wks after*	$21,000*	Infusion rxn Headache Antibody development Gastrointestinal symptoms URTI/Other infections*	Not reported (refer to infliximab)**

https://www.skintherapyletter.com/psoriasis/education-tool-biologics/

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Psoriasis – treatment - biologics

Biologic	Other Compatible Conditions	Contraindications	Dosing	Approx. Cost (First Year)	Common Adverse Reactions (>10%)	Efficacy – Primary Outcome and Long-term Outcome*
Brodalumab (Siliq) IL-17i	PsA Hepatitis B/C Pregnancy Breastfeeding[a]	Crohn Disease Hypersensitivity to brodalumab[a]	Weekly for 3 wks, then every 2 wks (SC)[a]	$18,960[b]	URTI/Other infections[a]	sPGA 0/1 at Week 12: % of sPGA responders maintained until Week 52:
Ixekizumab (Taltz) IL-17i	PsA Hepatitis B/C[a]	Hypersensitivity to ixekizumab Pregnancy[a]	Every two wks until week 12, then every 4 wks (SC)[a]	$25,927[b]	URTI Injection site rxn[a]	sPGA 0/1 at Week 12: % of sPGA responders maintained until Week 60:
Secukinumab (Cosentyx) IL-17i	PsA Hepatitis B/C Pregnancy Breastfeeding[a]	Hypersensitivity to secukinumab IBD TB Chronic Infection[a]	Loading dose weekly for 4 wks, then every 4 wks after (SC)[a]	$26,559[b]	URTI/Other infections[a]	PASI 75 at Week 12: % of PASI 75 responders maintained until Week 52-52:
Guselkumab (Tremfya) IL-23i	PsA (phase II RCT) Breastfeeding[a]	Hypersensitivity to guselkumab Active infection Untreated hepatitis B Hx of lymphoreticular malignancy IBD TB Pregnancy[a]	Dose at wks 0 and 4, then every 8 wks after (SC)[a]	$21,418[b]	URTI/Other infections[a]	PASI 90 at Week 16: % of PASI 90 responders maintained until Week 48:
Ustekinumab (Stelara) IL-12/23i	PsA Crohn Disease Pregnancy Breastfeeding[a]	Active infection Untreated hep B Hx of lymphoreticular malignancy Hypersensitivity HIV[a]	Dose at 0 and 4 wks, then every 12 wks after (SC/IV)[a]	$22,966[b]	Antibody development URTI/Other infections[a]	PASI 75 at Week 12: % of PASI 75 responders maintained until Week 52:
Risankizumab (Skyrizi) IL-23i	Crohn Disease (Phase II RCT)[a]	Hypersensitivity Pregnancy[a]	Dose at wks 0 and 4, then every 12 wks after (SC)[a]	$24,973[b]	Antibody development URTI/Other infections[a]	sPGA 0/1 at Week 16: 84-88% sPGA 0/1 at Week 52: 87%[a]

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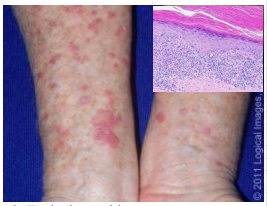
Drug-induced lichenoid dermatitis – treatment

1. Eliminate potential drug causes



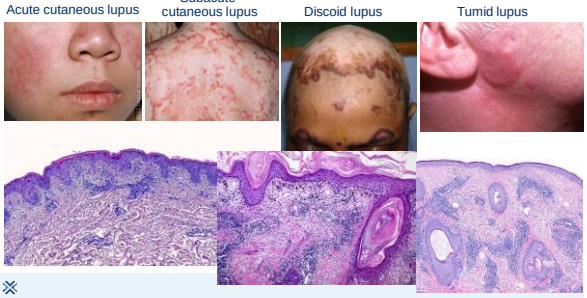
2. Topical steroids
3. Wide range of immunosuppresives

Group of drug	
Antimicrobial substances	Aminosalicylate sodium, ethambutol, griseofulvin, ketoconazole, streptomycin, tetracycline, trovafloxacin, isoniazid
Antihistamines (H_1-blocker)	Ranitidine*, rosiglitine
Antihypertensives/antiarrhythmics	**ACE inhibitors** (captopril, enalapril), doxazosin, **beta blockers** (propranolol, labetalol, sotalol), **methyldopa**, prazosin, nifedipine, **quinidine**
Antimalarial drugs	**Chloroquine**, **hydroxychloroquine**, quinine
Antidepressives/antianxiety drugs/antipsychotics/antiseizure medications	Amitriptyline, carbamazepine, chlorpromazine, levomepromazine, methopromazine, imipramine, lorazepam, phenytoin
Diuretics	**Thiazide diuretics** (chlorothiazide and hydrochlorothiazide), furosemide, spironolactone
Antidiabetics	Sulfonylureas (chlorpropamide, glimepiride, tolazamide, tolbutamide, glyburide)
Metals	**Gold salts**, arsenic, bismuth, mercury, palladium, lithium
Nonsteroidal anti-inflammatory drugs	Acetylsalicylic acid, benoxaprofen, diflunisal, fenclofenac, flurbiprofen, ibuprofen, indomethacin, naproxen, sulindac
Proton pump inhibitors	Omeprazole, lansoprazole, pantoprazole
Lipid lowering drugs	Pravastatin, simvastatin, gemfibrozil
Tumor necrosis factor-alpha antagonists	Infliximab, adalimumab, etanercept, lenercept
Checkpoint inhibitors	Nivolumab, pembrolizumab, atezolizumab, ipilimumab
Miscellanea	Allopurinol, bleomycin, cinnarizine, cyanamide, dapsone, hydroxyurea, hepatitis B vaccine, imatinib, immunoglobulins, interferon alfa, l-thyroxin, levamisole, mesalamine, methycran, **penicillamine**, procainamide, pyrimethamine, pyrithioxine, **quinacrine**, sildenafil, sulfasalazine, terbinafine, trihexyphenidyl, ursodeoxycholic acid

The **bolded** drugs are the ones most frequently implicated.

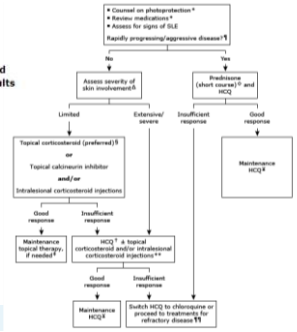
Autoimmune connective tissue disease - diagnosis

Acute cutaneous lupus | Subacute cutaneous lupus | Discoid lupus | Tumid lupus



Autoimmune connective tissue disease - treatment

Management of discoid lupus erythematosus and subacute cutaneous lupus erythematosus in adults



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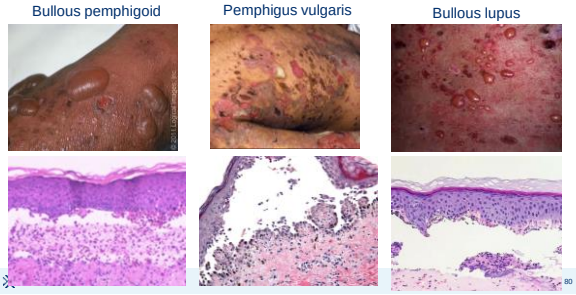
Autoimmune bullous dermatoses, examples - diagnosis

Bullous pemphigoid | Pemphigus vulgaris | Bullous lupus



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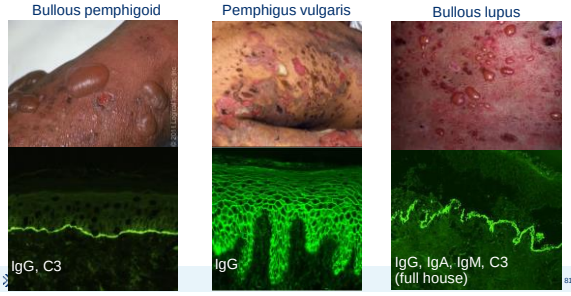
Autoimmune bullous dermatoses, examples - diagnosis

Bullous pemphigoid | Pemphigus vulgaris | Bullous lupus



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Medications implicated in drug-associated bullous pemphigoid

Likely association*	Probable association†	Uncertain association‡
Alogliptin	Actinomycin D	Aldesleukin (IL-2)
Anagliptin	Adalimumab	Amantadine
Aspirin	Amoxicillin	Amlodipine
Bioxtim	Ampicillin	Amtibralin (dibrransc)
D-penicillamine	Arsenic	Atapropazone
Enalapril	Atezolizumab	Captopril
Erlotinib	Bumetanide	Coal tar
Etanercept	Cefaclor	Complementary medicines
Everolimus	Cephalexin	COVID-19 mRNA vaccines
Furosemide	Chloroquine	Dabrafenib
Ibuprofen	Ciprofloxacin	Diazepin
Levofloxacin	Diclofenac	Enoxaparin
Linagliptin	Dorzolamide	Escitalopram
Moxifumab	Durvalumab	Fluoxetine
Pembrolizumab	Efalizumab	Fluprenthixol
Phenacetin	Fluoxetine	Galantamine hydrobromide
Psoralens with ultraviolet A	Gabapentin	Herpes zoster vaccine
Rifampicin	Griseofulvin	Influenza vaccine
Serratiopeptidase	Hepatitis B vaccine	Iodide
Sirolimus	Hexavalent combined vaccine	Levetiracetam
Sitagliptin	Hydrochlorothiazide	Mesalazine
Teneligliptin	Infliximab	Nadolol
Tetanus toxoid	Ipilimumab	Nifedipine
Trelagliptin	Lisinopril	Novocaine (benzyl benzoate)
Vildagliptin	Losartan	Omeprazole
	Mefenamic acid	Placental extracts
	Metamizole	Photodynamic therapy
	Metronidazole	Risperidone
	Penicillin	Rotavirus vaccine
	Rosuvastatin	Sulfonamide
	Spironolactone	Swine flu vaccine
	Sulfasalazine	Timolol
	Terbinafine	Valsartan
	Ustekinumab	

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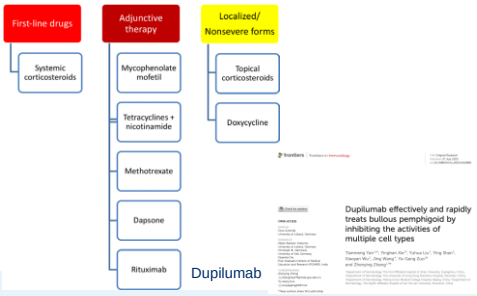
Treatment – autoimmune bullous disease – BP as an example



Dupilumab

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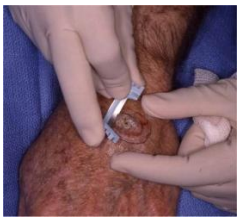
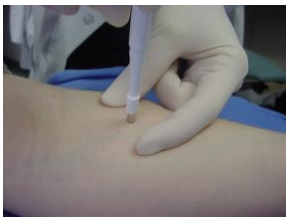
Basic dermatologic procedures

Shave biopsy



Punch biopsy



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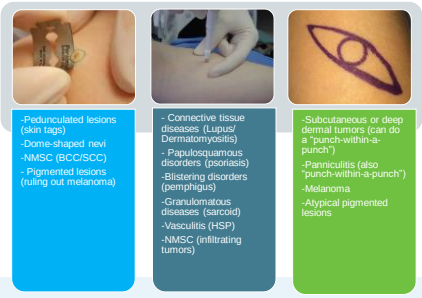
Types of Biopsies and Indications



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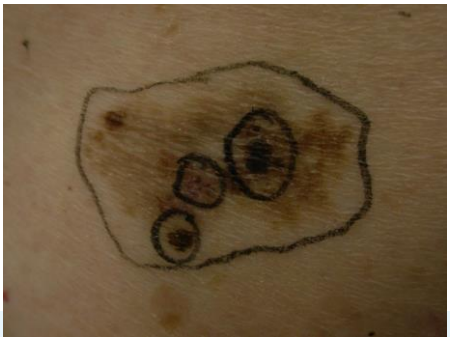

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Biopsy Site Selection

BIOPSY SITE SELECTION	
Lesion/disorder	**Appropriate site**
Tumor	Thickest portion; avoid necrotic tissue
Blister	Edge of lesion, including perilesional skin (see Fig. 0.11)
Ulcerated/necrotic lesion	Edge of ulcer or necrosis plus adjacent skin
Generalized polymorphous eruption	Characteristic lesion of recent onset (± more developed lesion)
Small vessel vasculitis	Characteristic lesion of recent onset

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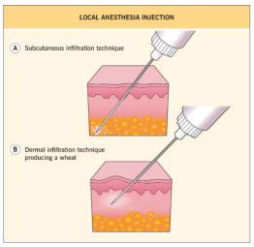
Patient Preparation

- Determine the type of biopsy
- Informed consent: bleeding, discomfort, infection, and scarring
- Site preparation:
  - Identification and marking
  - Time Out
  - Photograph
    - Close up for lesional details
    - Distant for identification of landmarks

Anesthesia Techniques

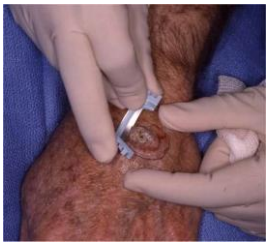
- Lidocaine 1% with or with out epinephrine
- Small lesions: direct infiltration of anesthetic into lesion
- Larger lesions: a field block by placing a ring of anesthesia around surgical site
- Bevel up
- Use small gauge needle (30), insert quickly at a 45° angle
- Slow injection to create an intradermal wheal, then may proceed to subcutaneous injection depending on shave vs. punch
- Additional sticks should be done through areas that are already numb
- Use smaller syringes – require lower pressure for injection
- Warm anesthetic to body temperature
- Slow injection
- Verbal and tactile distraction



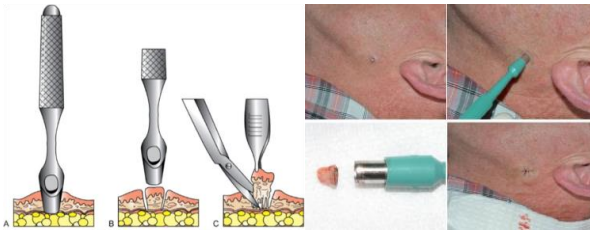
Bolognia et al. Dermatology

Patient Preparation Continued

- Prep
  - ETOH swab
  - Iodine
  - Chlorhexidine
- Anesthesia
  - Plane of injection
- Procedure
  - Hemostasis: Aluminum chloride, hemostatic sponge, compression, cautery, suture, ferric subsulfate
  - Label specimen bottle with formalin



Punch Biopsy



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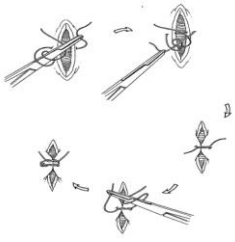
Instrument tie

- Needle holder is held parallel to the wound incision
- Needle end of suture is looped twice around the holder before grasping the free end of suture
- The free and needle end of the suture exchange sides across the wound
- Additional throws are done in a similar manner, except with one loop



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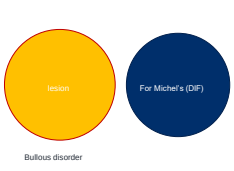
Biopsy for direct immunofluorescence



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CONTINUING MEDICAL EDUCATION

Skin biopsy

Biopsy issues in specific diseases

Elston DM, Stratman EJ, Miller SJ. Skin biopsy: Biopsy issues in specific diseases.

J Am Acad Dermatol. 2016 Jan;74(1):1-16; quiz 17-8. doi: 10.1016/j.jaad.2015.06.033. Erratum in: J Am Acad Dermatol. 2016 Oct;75(4):854. PMID: 26702794.


Table I. Suspected disease entities with recommended biopsy type, site, and requested laboratory tests

Billing/coding

Code	Description
11102	Tangential biopsy of skin (e.g., shave, scoop, saucerize, curette) single lesion
+11103	each separate/additional lesion (List separately in addition to code for primary procedure)
11104	Punch biopsy of skin (including simple closure, when performed) single lesion
+11105	each separate/additional lesion (List separately in addition to code for primary procedure
11106	Incisional biopsy of skin (e.g., wedge) (including simple closure, when performed) single lesion
+11107	each separate/additional lesion (List separately in addition to code for primary procedure)

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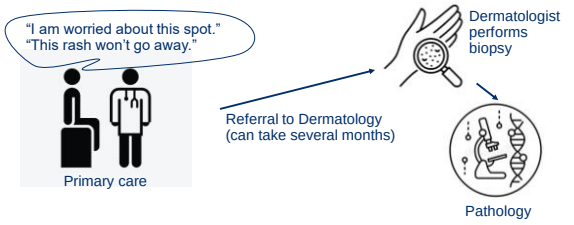
Dermatology in the Primary Care Setting

Primary care providers are in a prime position to take care of dermatologic issues.



Jeffrey D. McBride, OU Dermatology, OU Dermatopathology

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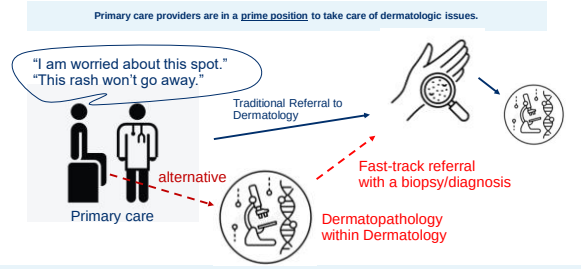
Dermatology in the Primary Care Setting



Thank you for your attention.

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