



Treatment of Acne & Rosacea

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Disclosures

I do receive financial compensation from Journey Medical Corporation for speaking at dinner programs regarding the dermatology drugs they offer.

Learning Objectives

- Understand the reasons for treatment failure, and be able to address these issues with the patient.
- Stratify acne and rosacea by subtype and severity then determine the best treatment plan based off this determination.
- Understand possible adverse effects associated with different treatment options.

Treatment Considerations

- Fitzgerald Skin type and risk for PIH
- Severity of disease
- Distribution of lesions
 - Face only? Where on face?
 - Trunk?
- Tolerability Factors
 - Dry, oily or combination skin
 - Sensitive skin (especially in rosacea)
 - Extracurricular activities
 - Swimmers increased risk for excessive drying
 - Frequently outdoors
- Can patient swallow a pill?
- Think about compliance issues ie QD vs BID dosing
- Limit number of steps to regimen
- Consider OTC skin care products which can affect tolerability/compliance
 - Toners
 - OTC acne washes
 - Moisturizers (lotion vs cream vs ointment)

Exacerbating Factors & Reasons for Treatment Failure

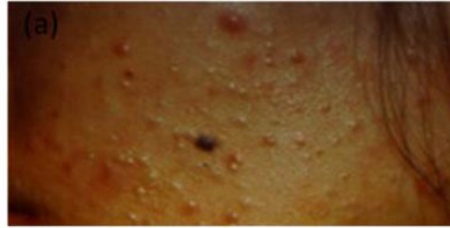
- Oral steroids
- Neuroleptics / lithium
- High glycemic diet
- Skim milk
- Metabolic syndrome
- PCOS
- Avoid
 - Astringents
 - Harsh cleansers
 - Antibacterial soaps
 - Pressed powders
 - Oil-based products



- Drug to Drug Interactions
- Coexisting conditions
- Antibiotic resistance
- Noncompliance

Acne Grading

- No one standardized grading system
- 2 most common systems
 - Investigator's Global Assessment (IGA)
 - Does not account for BSA or truncal acne
 - Global Acne Grading System (GAGS)
 - Accounts for distribution



https://opendermatologyjournal.com/contents/volumes/V14/TODJ-14-38/TODJ-14-38_F1.jpg

Investigator's Global Assessment (IGA)

0	Clear	Absence of papules/pustules/nodules/comedones +/- PIH/PIE, acne scars
1	Almost Clear	Few small scattered papules/pustules/comedones No nodules/cystic lesions
2	Mild	Some papules/pustules/comedones No nodules/cystic lesions
3	Moderate	Many papules/pustules, few to many comedones 2 or fewer nodules/cystic lesions
4	Severe	Many papules/pustules/comedones > 2 nodules/cystic lesions
5	Very Severe	Many papules/pustules/nodules/comedones covering most of face

Global Acne Grading System (GAGS)

Location	Factor X Grade (Grade 0-4) = local score	
Forehead	2	0= No lesions 1 = 1 or more comedones 2 = 1 or more papules 3 = one or more pustules 4 = one or more nodules
Right Cheek	2	
Left Cheek	2	
Nose	1	
Chin	1	
Chest & Upper Back	3	

Global Score is summation of Grades (0-4) of each location multiplied by its factor.

0 = None

1-18= mild

19-30 = moderate

31-38= severe

>39 = very severe

Treatment Regimens for Acne Vulgaris

- Mild Comedonal
 - First line
 - Topical Retinoid
 - +/- Extractions
 - Second line
 - Salicylic acid
 - Azelaic acid
- Mild Inflammatory
 - First line
 - Topical antimicrobial combination + topical retinoid
 - BPO wash for trunk
 - Second line
 - Azelaic acid
 - Sodium sulfacetamide-sulfur
 - Salicylic acid

Treatment Regimens for Acne Vulgaris

- Moderate Inflammatory
 - First line
 - Oral antibiotics + Topical retinoid + benzoyl peroxide
 - Second line
 - Alternate antibiotic + Alternate topical retinoid + alternate BPO
 - Women
 - Spironolactone + OCP + topical retinoids
 - Isotretinoin in case of relapse with d/c of antibiotic, recalcitrant acne, scarring
- Severe (nodular/conglobate)
 - Isotretinoin
 - Oral antibiotic + topical retinoid + benzoyl peroxide
 - Women
 - Spironolactone + OCP + topical retinoid
 - +/- topical or oral antibiotics
 - +/- benzoyl peroxide

Topical Retinoids

- Promote normal desquamation of follicular epithelium → reduction in comedones and prevents development of new lesions
- Mild anti-inflammatory effect by inhibiting leukocyte activity and pro-inflammatory cytokines
- Aids in penetration of other anti-acne agents
- Many vehicles: gel, cream, lotion, foam

Duration to judge efficacy: 8-12 weeks

May cause inflammatory flare during first 3-4 weeks of treatment

Directions: Apply pea sized amount to full face every night

- Subtypes of topical retinoids
 - Tretinoin → Binds alpha, beta, gamma
 - Adapalene → binds beta and gamma
 - Tazarotene → binds beta and gamma
 - Trifarotene → binds gamma
- Side Effects
 - Local irritation in form of erythema, dryness, scaling, burning/stinging
 - Increased risk for sunburn due to thinning of stratum corneum
 - Contraindicated in pregnancy due to low risk of birth defects
 - Caution with using these products in conjunction with waxing

Topical Retinoids

	Strengths	Benefits	Downfalls
Adapalene	0.1% (OTC) 0.3%	Milder comedolytic, so less irritation Good for sensitive skin/cold climates Not degraded by light (qam or qpm)	Milder comedolytic, slower improvement
Tretinoin	0.025%, 0.05%, 0.1% Microsphere: 0.04%, 0.06%, 0.08%	Many different strengths to choose from Microsphere: less irritation through controlled slow release	Degraded by light (qpm application only)
Tazarotene	0.045%, 0.05%, 0.1%	Not degraded by light (qam or qpm) More aggressive retinoid (faster improvement)	Highest risk for irritation/intolerance
Trifarotene	0.05%	Not degraded by light (qam or qpm)	

Benzoyl Peroxide

- Bacteriostatic and aids in prevention of bacterial resistance to antibiotics
- Best for inflammatory acne, but mildly comedolytic
- Not indicated to be used during pregnancy
- Multiple vehicles and strengths available
 - Gel, cream, wash, bar soap, lotion
 - 2.5% → 10%
- Resistance does not develop

Duration to Judge Efficacy: Improvement within 3 weeks, max results in 8-12 weeks

Directions: Once or twice daily dosing

- Adverse Effects
 - **Bleach out fabrics**
 - Possible contact dermatitis
 - 1-3% patients
 - Avoid use if patient develops marked erythema with use
 - Mild irritation possible

Topical Antibiotics

Clindamycin, Minocycline, Erythromycin

- Indication: mild inflammatory acne
- Well tolerated (minimal AEs)
- Clindamycin and erythromycin are safe to use in pregnancy
- Must use in conjunction with topical BPO to aid in prevention of bacterial resistance
- Multiple vehicles available
 - Foam, lotion, gel, cream
- Good option for larger BSA
- **Directions:** Apply to affected area once or twice daily.



Topical Dapsone

- Modest to moderate efficacy in inflammatory and comedonal acne
- Mechanism of action poorly understood
- Benefit higher in females over males
- 2 Strengths available: 5% & 7.5%
- Minimal to no irritation, so great for sensitive skin or colder climates

Duration to judge efficacy: 8-12 weeks

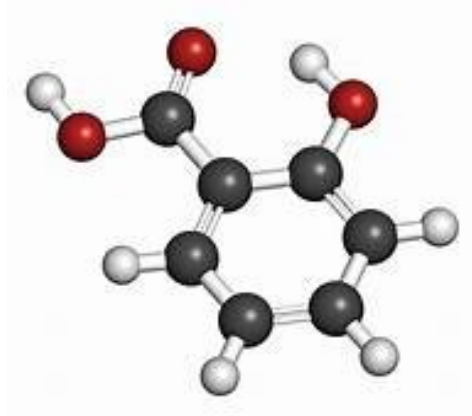
Directions: Apply thin layer to full face once or twice daily

- Adverse Effects
 - Orange skin discoloration when combined with benzoyl peroxide
 - Concomitant use with TMP-SMX can increase systemic absorption of topical dapsone
 - Not indicated in pregnancy

Salicylic Acid

- Beta hydroxy acid
- Comedolytic and mild anti-inflammatory
- Adverse Effects
 - Erythema
 - Scaling
- Available OTC in numerous formulations
 - 0.5% - 2%
 - Wash, peels, nasal strips, lotion
- Limit BSA to avoid salicylate toxicity

Directions: Apply 1-3x per day, initially applying once daily and gradually increasing as tolerated



Azelaic Acid

- Naturally occurring dicarboxylic acid in cereal grains
- Mild anti-inflammatory, comedolytic and improves on post-inflammatory hyperpigmentation
- Available in foam or gel
- Adverse Effects
 - Mild irritation (less severe than topical retinoid)
- Safe to use in pregnancy
- Good for ethnic/pigmented skin

Directions: Massage into skin twice daily

Additional Topical Considerations

- Sodium sulfacetamide-sulfur → anti-inflammatory
 - Safe to use in pregnancy
 - No common adverse effects
 - Some patients may be bothered by the smell
 - Available as wash, lotion, cream
- Topical Niacinamide 2-4% gel OTC



<https://cdn.sanity.io/images/0vv8moc6/dermatologytimes/342887165e1693e449e57a33ad3b153f48b473e6-1000x600.png>

Oral Antibiotics

Doxycycline, Minocycline, Erythromycin, Sarencycline

- Indications
 - Moderate to severe acne
 - Recalcitrant acne
 - Treatment of chest/back/shoulders
 - Scarring/PIH
- Use in combination with topical regimen (BPO important for prevention of bacterial resistance)
- Bactrim, Amoxicillin, Clindamycin are alternative options for treatment but are less commonly used
 - Bactrim → risk for SJS/TEN
 - Amoxicillin → safe in pregnancy, great for tetracycline allergy
 - Clindamycin → risk for pseudomembranous colitis

Duration of therapy: 3-6 months

Dosing: QD or BID

Oral Antibiotics

	Common AEs	Pregnancy/ Pediatrics	Dosing	Antimicrobial coverage
Doxycycline	Photosensitivity Nausea Pill esophagitis	Not indicated Avoid in < 8 yoa	50-100 mg QD- BID Alt: 20 mg BID or 40 mg QD	Broad spectrum
Minocycline	Vestibular effects Hyperpigmentation Lupus like syndrome	Not indicated Avoid in <8 yoa	50-100 mg QD- BID	Broad spectrum Most effective
Sarencycline	Vestibular effects Nausea (3%)	Not indicated Avoid in <8 yoa	60- 150 mg QD	Narrow spectrum
Erythromycin (off-label use)	GI upset Diarrhea	Safe	500 mg BID	Broad spectrum

Hormonal Therapy

- Consider in females with
 - PCOS
 - Late onset CAH
 - Late onset acne
 - Severe
 - Recalcitrant
 - Lower face/neck
- Treatment Options
 - Oral contraceptive pill (OCP)
 - Spironolactone
 - 1% Clascoterone cream



<https://www.zwivel.com/blog/cystic-acne-treatments/>

Hormonal Therapy: OCPs

- Decrease androgen production in ovary and bind free testosterone and reduce 5 α reductase activity
- Choose OCP with low androgenic activity (ie low androgenic-progestins)
 - Ethynodiol diacetate
 - Norethindrone
 - Levonorgestrel
 - Desogestrel
 - Norgestimate

Duration to Judge Efficacy: 3-6 months

- FDA Approved for Acne
 - Ethinyl estradiol/noregestimate
 - Ethinyl estradiol/norethindrone acetate/ferrous fumarate
 - Ethinyl estradiol/drospirenone/levomefolate
 - Ethinyl estradiol/drospirenone
- Adverse Effects
 - Weight gain/ weight loss
 - Breast tenderness
 - Abnormal menses
 - Melasma
 - Blood clots
 - Breast cancer
- Decreased risk of endometrial, colorectal and ovarian cancer

Hormonal Therapy: Spironolactone

- Used off label to treat acne in women
- Androgen receptor blocker and inhibits 5 α -reductase
- Avoid in pregnancy, but safe with breastfeeding

Duration to Judge Efficacy: 3-6 months

Dosing: 25-200 mg QD or BID

- Common Adverse Effects
 - Breast tenderness (17%)
 - Headache/fatigue
 - Lightheadedness/dizziness (orthostatic hypotension)
 - Irregular menses (22%)
 - Diuresis (29%)
 - Feminization of male baby in pregnancy
 - Hyperkalemia

Hormonal Therapy: 1% Clascoterone cream

- Androgen receptor blocker indicated in patients 12 years of age and older
- Became commercially available November 2021

Dosing: Thin layer to affected area BID

- Adverse Effects
 - Local irritation (pruritus, burning, erythema, peeling)
 - HPA axis suppression
 - 5% adults
 - 9% pediatric patients
 - Hyperkalemia

Isotretinoin

- Indications
 - Severe cystic acne
 - Recalcitrant or relapsing acne
 - Scarring
 - Acne conglobata/acne fulminans
 - Severe inflammatory rosacea
 - Pyoderma faciale
 - Gram negative folliculitis
- Acts upon sebaceous gland to reduce sebum production by 90% → decrease *P. acnes* and normalization of follicular keratinization
- Patients more likely to relapse
 - <16 yoa
 - Adult women
 - Mild acne
- iPledge REMs
 - Patients who can get pregnant
 - Contraception counseling
 - Monthly UPT
 - Patients who cannot get pregnant
- Dosing 0.5-1 mg/kg/d (can give up to 2 mg/kg/d ie trunk)
- 120-150 mg/kg treatment goal
- 40-60% patients achieve “cure” for acne
- Severe nodulocystic acne/acne fulminans/conglobata → consider 1-2 months Prednisone prior to or concomitantly with Isotretinoin

Isotretinoin Adverse Effects

- Retinoid embryopathy develops in 66% pregnancies
 - Craniofacial, cardiovascular, CNS and thymus abnormalities
- Psychiatric → **depression**, psychosis, suicidal ideation, **irritability**
- IBD → possible new onset IBD in patients exposed to isotretinoin though patients with known IBD have been successfully treated without flaring
 - Meta-analysis of 5 studies concluded no increased risk of IBD
- **Retinoid dermatitis** → dry lips, skin, eyes, mucous membranes
- Increased skin fragility
- **Arthralgias/myalgias**
- Elevated triglycerides
- Elevated transaminases
- Alopecia
- **Photosensitivity**
- Decreased night vision
- Epiphyseal plate closure - consider bone age x ray in males <16 yoa
- Paronychia

Physical Treatment Modalities

- Comedone extraction / light electrocautery
- Intralesional corticosteroids (2.5 mg/mL)
 - Counsel patients on risk for steroid atrophy
- Chemical peels (commonly salicylic acid and glycolic acid)
- Photodynamic therapy



<https://www.clearconfidence.co/wp-content/uploads/2020/12/2-Comedone-Extractor-scaled-e1606825923157.jpg>

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<https://derickdermatology.com/wp-content/uploads/2017/08/SyringeKenalog.jpg>

Acne Scarring

- Subtypes
 - Boxcar scarring
 - Ice pick scars
 - Rolling Scars
 - Hypertrophic scars
 - Post-inflammatory hyperpigmentation
- Treatments
 - Microneedling with PRP
 - Laser resurfacing
 - Deeper chemical peels
 - Dermabrasion



<https://millefioriskincare.com/wp-content/uploads/Types-of-Acne-Scars.jpg>

Rosacea Treatment

- Considerations
 - Determine subtype and severity
- Overlap with acne treatments
- Counseling
 - Daily sunscreen → consider physical blockers
 - Avoid astringents, acidic/peeling agents, abrasive or exfoliant products
 - Avoid triggers
 - Cover erythema with green/yellow tinted foundation



https://media.allure.com/photos/60be8c0e4adbce83780bddf1/16:9/w_2560%2Cc_limit/how%2520much%2520sunscreen.jpg

Papulopustular Rosacea: Topical Therapy

- **Metronidazole**

- Dosing: QD - BID
- Best for inflammatory, but gives modest improvement on erythema
- Formulations: Gel, lotion, cream

- **Azelaic acid**

- Dosing: QD - BID
- Treats inflammatory lesions, helpful for PIH
- Formulations: gel or foam

- **Sodium sulfacetamide sulfur**

- Adjunctive treatment for more severe inflammatory disease
- Formulations: wash or lotion

- **Benzoyl Peroxide**

- Dosing: QD - BID
- Treats inflammatory lesions
- Bleaches fabric
- Formulations: gel, foam, wash, bar, lotion

- **Ivermectin 1% gel**

- Dosed QD
- Minimal AEs

EET Rosacea Treatment: Topical Therapy

- **Bromonidine 0.33% gel**

- Alpha adrenergic agonist
- Common Adverse Effects
 - Flushing
 - Burning/stinging

Dosing: Apply 5 pea sized amounts to full face QAM

Duration to Judge Efficacy: 1-2 applications

- **Oxymetazoline 1% cream**

- Alpha adrenergic agonist
- Common Adverse Effects
 - Worsening of erythema
 - Burning/stinging
 - Pruritus
 - May increase risk of angle closure glaucoma

Dosing: Apply pea sized amount to full face QAM

Duration to Judge Efficacy: 1-2 applications

Phymatous Rosacea Treatment: Topical Therapy



- Tretinoin, adapalene, tazarotene
- Used in sebaceous hyperplasia/phymatous rosacea
- Caution in this population due to skin sensitivity and dryness
- Directions and precautions same as that for treatment of acne vulgaris

https://www.google.com/url?sa=i&url=https%3A%2F%2Fquizlet.com%2F108468239%2Fshields-acne-rosacea-flash-cards%2F&psig=AOvVaw1SjC1fTfTN2D9KcdVCqec4&ust=1645765082728000&source=images&cd=vfe&ved=0CAwQjhxqFwoTCPD-jO_GI_YCFQAAAAAdAAAAABAD

Rosacea Treatment: Oral Therapy

- Tetracyclines (Doxycycline/Minocycline)
 - Start patients on similar dosing as acne and decrease dose as patients clear
 - Maintenance dosing: 40-50 mg QD doxycycline
- Bactrim and Ciprofloxacin also useful, but their use is limited due to concerns for bacterial resistance and AEs.
- Isotretinoin 0.5-1 mg/kg/d
 - “Cure” rarely seen in this population
 - Long term maintenance at 0.3mg/kg may be necessary
- Propranolol/carvedilol
 - Improve flushing/erythema
 - Most patients develop AEs before beneficial effects seen
 - Propranolol 20-40 mg TID
 - Start at 10 mg TID and titrate up every 2 weeks

Rosacea Treatment: Surgical

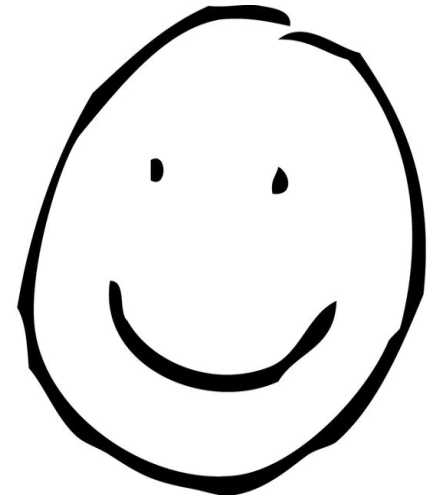
- Telangiectasias/persistent erythema
 - Lasers/light devices
- Heated scalpel/hot loop recontouring or CO2 laser for rhinophyma



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Treatment Pearls

- Treat to the patient's satisfaction - listen!
- Remember to set expectations
 - Duration of treatment
 - Chronicity of disease
 - Duration of treatment before improvement seen
 - Possible AEs
- Remember to choose a regimen that you feel the patient CAN & WILL follow.
- Review OTC supplements and patient's dietary habits
- At follow-up, review the regimen with patient and have them tell you how and when they use their medications.



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