

Pharmacologic Treatment Options

Drug/Drug Class	MOA	How Supplied	Therapeutics	Side Effects/ Warnings/ Contraindications	Clinical Pearls
Benzoyl Peroxide (BP)	-Bactericidal activity against P. acnes -Prevent or eliminate development of P. acne resistance when given in combination with ABX therapy	-OTC -Available in 2.5-10% -Formulations: creams, lotions, gels, foams, facial washes	-Apply to skin up to 2 times daily -1 st line: mild to moderate non-inflammatory acne -monotherapy for mild acne -combination for moderate/severe acne -Results: as soon as 5 days	-Dryness -Redness -Stinging -Irritation -Peeling	-Lower concentrations, water-based, and wash-off may be better for sensitive skin -Start low and titrate up in concentration over several weeks -BP can bleach and discolor hair and fabrics -Clinically visible improvement seen in 3 rd week, Max effect seen 8 to 12 weeks of drug use -Interacts with retinoids
Retinoids	-Stimulate epithelial cell turnover -Aid in unclogging pores -Anti-inflammatory by inhibiting neutrophil and monocyte chemotaxis	-Rx and OTC (adapalene) -Within class: tretinoin, adapalene, tazarotene (see chart below for brand names) -Formulations: creams, lotions, gels	-Apply to skin once daily before bedtime -1 st line: mild to moderate comedonal and inflammatory acne -monotherapy or in combination with BP or topical antibacterials	-Photosensitivity -Peeling -Transient erythema -Dryness -Irritation -Not approved for <12 years of age -Pregnancy: do not use --Tazarotene: category X --Tretinoin, adapalene: category C	-Tretinoin is inactivated by UV light and oxidized by BP- apply at night and not at the same time as BP -With use, acne may initially WORSEN, then improvement in 3 to 4 months -Adapalene> Tretinoin> Tazarotene -Microsphere gel or water-based gel may be better for sensitive skin
Topical Antibacterials	-Inhibits growth of P. acnes	-Rx only -Within class: clindamycin, erythromycin (see chart below for brand names)	-Apply to skin up to 2 times daily -NEVER used as monotherapy due to resistance development, used in combination with BP	-Dryness -Erythema -Itching -Tolerated well	-combination with BP decreases resistance and improves symptoms of mild to moderate inflammatory acne

		-Formulations: gel, solution, lotion, foam, ointment, pad	-clindamycin> erythromycin (less resistance developed)		
Oral Antibacterials	-Inhibits growth of P. acnes	-Rx only -Within class: tetracycline, doxycycline, minocycline, erythromycin, clindamycin, TMP/SMZ	-Tetracycline first!- then clinda or erythro -moderate to severe acne after FAILURE of topical therapy -used in combination with BP and/or topical retinoid	Tetracyclines: -GI upset, N/V -Photosensitivity -Tooth discoloration -Hepatotoxicity -Pseudotumor cerebri -do not use in children <8 years of age -Pregnancy: do not use Macrolides: -C. difficile infection -GI upset, N/V -Metallic taste TMP/SMZ -Hypersensitivity reactions -N/V -Myelosuppression -Not recommended in third trimester of pregnancy	-Improvements seen in 6 to 10 weeks Tetracyclines: Can be taken with or without food. To reduce esophageal irritation, take with full glass of water. DO NOT take tetracyclines with isotretinoin due to increased risk of pseudotumor cerebri Macrolides: Take with food if it upset the stomach.
Isotretinoin	-Antimicrobial and anti-inflammatory agent	-Rx only -Brand Names: Absorica, Amnesteem, Claravis, Accutane	-FDA approved for severe recalcitrant nodular acne (severe acne) -Useful for pt who are treatment-resistant to other therapies or acne which is producing physical and/or psychological scarring	- B ² A ² D ² SH ² I ² P ⁵ -bone mineral density loss, blurred vision -Auditory impairment, anemia/leukopenia -Dryness, Diarrhea -SJS -Hepatitis, headache -Inflammatory Bowel Disease, Impaired blood glucose and lipids -Pancreatitis, psychiatric illness (depression, anxiety, inc. suicidality), Photosensitivity, Pseudotumor cerebri (inc pressure in brain), Pregnancy category X	-Take with food for better absorption -Not able to donate blood while on therapy and for 1 month after discontinuation -iPLEDGE Program: women of childbearing potential must commit to 2 forms of contraception (one MUST be primary prevention), pregnancy testing is required before during and 1 month after therapy (See more specifics at the end of this table**)

				<ul style="list-style-type: none"> -Pregnancy: birth defects and abnormalities, spontaneous abortion and premature birth -DO NOT give with tetracyclines: increased risk for pseudotumor cerebri 	<ul style="list-style-type: none"> -At risk for dry eyes if use contacts -Able to use artificial tears -Use sunscreen due to photosensitivity -Instruct pt to not drive at night until determination of extent of affected vision
Dapsone	<ul style="list-style-type: none"> -Antimicrobial and anti-inflammatory agent 	<ul style="list-style-type: none"> -Rx only -Aczone (5%) gel 	<ul style="list-style-type: none"> -Apply to skin twice daily -2nd line: mild to moderate inflammatory acne -Modest to moderate efficacy in reducing inflammatory lesions (35-42%) 	<ul style="list-style-type: none"> -Dryness -Erythema -Oiliness -Peeling -immediate use with BP: localized discoloration (yellow or orange) -Pregnancy: do not use -Breastfeeding: do not use 	<ul style="list-style-type: none"> -Better results seen in females -Results should be seen within 12 weeks, if not-reevaluate -Localized discoloration is not permanent- will go away in 1 to 8 weeks
Oral Contraceptives	<ul style="list-style-type: none"> -Decrease androgen production by the ovaries 	<ul style="list-style-type: none"> -Rx only -Only 4 approved: EE/norgestimate (Ortho-Cyclen), EE/norethindrone acetate, EE/drospirenone, EE/drospirenone/levo mefolate 	<ul style="list-style-type: none"> -2nd line: moderate to severe acne -recommended in tx of inflammatory acne in females 	<ul style="list-style-type: none"> -Nausea -weight gain -breast tenderness -breakthrough bleeding -increased risk of thromboembolic events (especially in smokers) -DO NOT use in pt with hx of VTE or are a high risk for VTE 	<ul style="list-style-type: none"> -Some women present with signs/symptoms suggestive of a hormonally induced worsening of acne
Spirolactone	<ul style="list-style-type: none"> -antiandrogen activity by decreasing testosterone production and binding 	<ul style="list-style-type: none"> -Rx only -Supply: 25 mg, 50 mg, 100 mg -Brand name: Aldactone 	<ul style="list-style-type: none"> -50 to 200 mg by mouth once daily -2nd line: moderate to severe acne -Not FDA approved for acne but in guidelines -Useful for tx in postadolescent acne in females 	<ul style="list-style-type: none"> -Diuresis -hyperkalemia -fatigue -headache -dizziness -Menstrual irregularities -Breast Tenderness -breast enlargement 	<ul style="list-style-type: none"> -testing for potassium levels is not required if there is no other indication to test -Drospirenone is an analog of spironolactone, safe to take together, minimal risk of increased potassium levels

Azelaic Acid	-Antimicrobial and anti-inflammatory agent	-Brand name: Finacea	-Thin film applied and massaged into affected areas twice daily (am and pm) -Mildly effective as comedolytic, antibacterial, and anti-inflammatory agent -Mild to moderate inflammatory acne and post-inflammatory dyspigmentation -Used in sensitive skin	-pruitus -burning/stinging -tingling -dryness -peeling Pregnancy: category B	-Not recommended as a first line or alternative in acne guidelines but an alternative for sensitive skin -improvement in symptoms in 1 to 2 months
Salicylic Acid	-comedolytic agent	-OTC -wash off and leave on preparations -0.5%-2% -cream, lotion, gel	-apply 1 to 3 times daily, slow titration to three times daily -alone or in combination for symptomatic treatment of acne	-dryness -peeling -scaling -Risk of salicylate toxicity with prolonged exposure in children <12 years of age	-clinical trials supporting efficacy are limited -if adverse effects occur, reduce frequency -Not recommended as a first line or alternative in acne guidelines

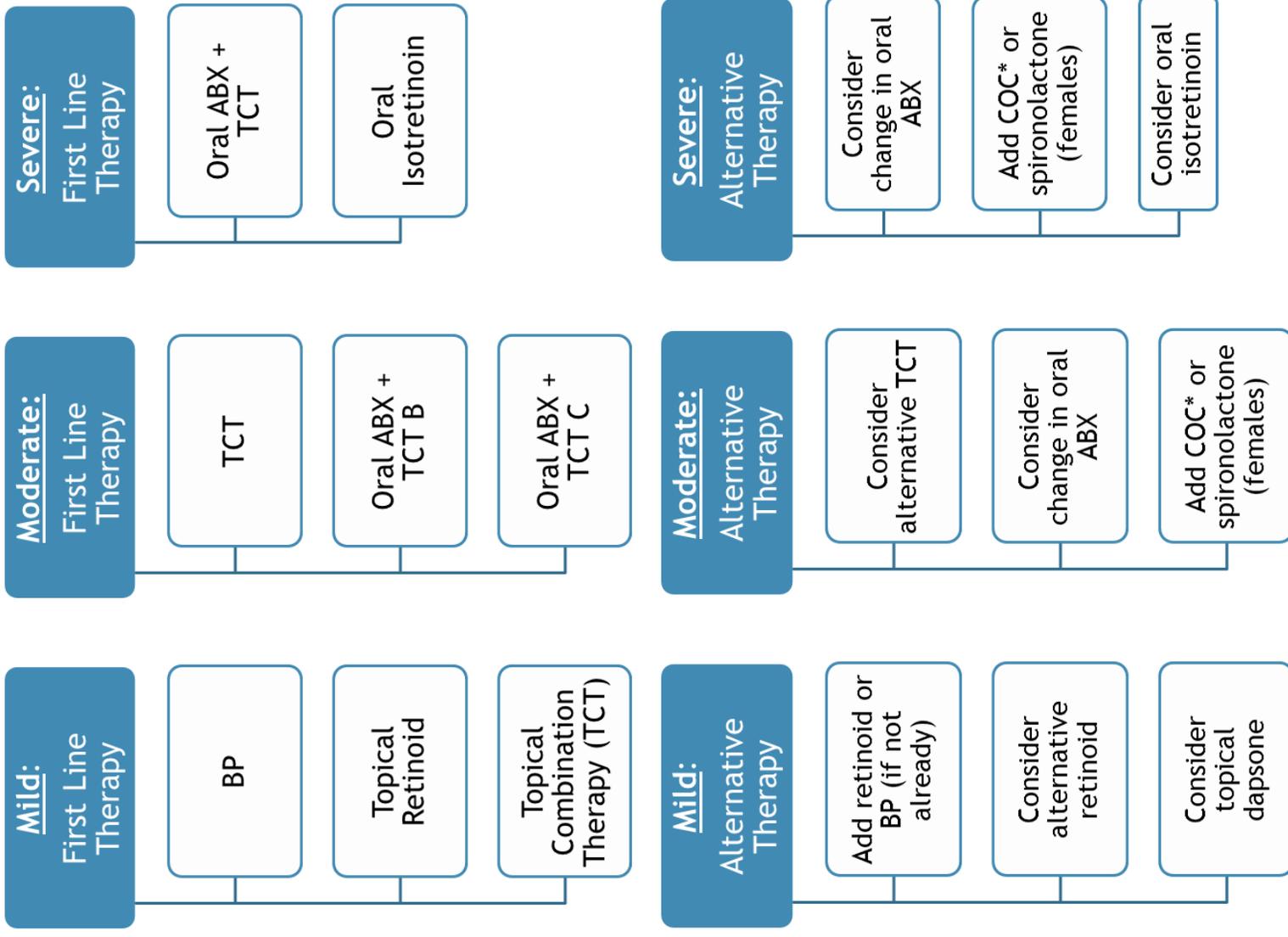
**Primary forms of conception are tying tubes, partner's vasectomy, intrauterine device, hormonal birth control (must contain estrogen), and abstinence. Secondary forms include male latex condoms, diaphragm, and cervical cup. Exception to these requirements include menopause and doctor documentation of, hysterectomy/bilateral oophorectomy, confirmation of infertility (ovaries do not work), and the patient commits to not having sexual contact with a male at any time for at least 1 month before, during, and 1 month after the last dose of the medication. Pt can be started on the medication after 2 negative pregnancy tests and effective contraception use for 1 month before. Contraception must be continued during and for 1 month after therapy. Patients must pick up their prescriptions within a specific time called the "prescription window". The time frame depends on the patient. Patients will receive ID cards from their doctors and before they are able to pick up their prescriptions, they are to be registered in the iPLEDGE Program system online.

Generic	Brand	Dosage Form	Generic	Brand	Dosage Form	
tretinoin	Retin-A	Cream, gel	dapsone	Aczone	Gel	
	Retin-A Micro, Retin-A Micro Pump	Gel		clindamycin	Cleocin-T	Gel, solution, lotion
	Atralin	Gel			Clindagel	
	Avita	Cream, gel			ClindaMax	
	Refissa	Cream	Evoclin	Foam		
	Renova, Renova Pump	Cream	erythromycin	Erygel	Gel	
	Tretin-X	Cream kit		Akne-Mycin	Ointment	
adapalene	Differin	Cream, gel, lotion	Ery	Pads, solution		
tazarotene	Tazorac	Cream, gel	clindamycin + BP*	**various**	Gel	
	Fabior	Foam	erythromycin + BP*	Benzamycin	Gel	
	Avage	Cream	azelaic acid	Azelex	Cream	
adapalene + BP*	Epiduo, Epiduo Forte	Finacea		Foam, gel		
EE** + norethindrone	Estrostep Fe, Tilia Fe, Tri-Legest Fe	Tablets	minocycline	Solodyn	Tablets	
EE** + drospirenone	Yaz, Gianvi, Loryna, Nikki, Vestura	Tablets		Minocin Kit	capsules	
EE** + drospirenone + levomefolate	Beyaz, Rajani	Tablets	spironolactone	Aldactone	Tablets	
EE** + norgestimate	Estarylla, Femynor, Mono-Linyah, MonoNessa, Ortho-Cyclen , Previfem, Sprintec	Tablets	isotretinoin	Accutane	Capsules	
	Ortho Tri-Cyclen , Tri-Femynor, Tri-Estarylla, Tri-Linyah, Tri-Previfem, Tri-Sprintec, TriNessa			Claravis		
	Ortho Tri-Cyclen Lo , Tri-Lo-Estarylla, Tri-Lo-Marzia, Tri-Lo-Sprintec, TriNessa Lo			Amnesteem		
				Absorica		

* : BP is benzoyl peroxide

** : EE is ethinyl estradiol

Bolded terms you need to memorize



Topical Combination Therapy (TCT)	
A	BP + topical antibiotic (tABX)
B	BP + retinoid
C	BP + retinoid + tABX

*COC: combined oral contraceptive