

Acne and Rosacea: Lifestyle and pharmacologic intervention

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Disclosures

- Speaker's Bureau for Abbvie, Beiersdorf, Eli Lilly, Janssen, Sanofi Genzyme, Sanofi-Aventis/Regeneron®, and Sun Pharma
- Strategic Advisor and Medical Board Member: Arcutis Biotherapeutics, Incyte Labs, Leo Pharma, and Novartis.
- No experimental or investigational use of drugs or devices will be presented.

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Objectives

- At the end of this presentation, the participant will be able to:

1. Identify the pathophysiology of acne and rosacea.
2. Describe the most effective lifestyle and pharmacologic approaches for treatment.
3. Recognize new indications and cautions for established products.

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Tips



- References
 - Listed throughout and at the end of the presentation
- To facilitate your learning
 - Specific tables/images can be viewed full page at the end of your handout.

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Introduction to Acne

- Acne vulgaris accounts for 12% of all dermatology visits.
- Most common skin disorder in America, with 17 million people suffering at any given time
- #1 most common dermatology diagnosis
- Considered by many one of the most difficult conditions to treat.
 - Drug resistance, compliance, access to medications, drug reactions, and home remedy additions/social media confusion

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Acne Vulgaris

- Acne vulgaris is considered a key driver of teen depression and suicidal ideation.
- However, many insurance companies will not cover acne treatments when the policy-holder becomes aged 18 or 21 years old.



Image source: Used with permission from Czerkasj, V.

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Acne Vulgaris (continued)

- At that point, it is considered “cosmetic” and thus not necessary for treatment.

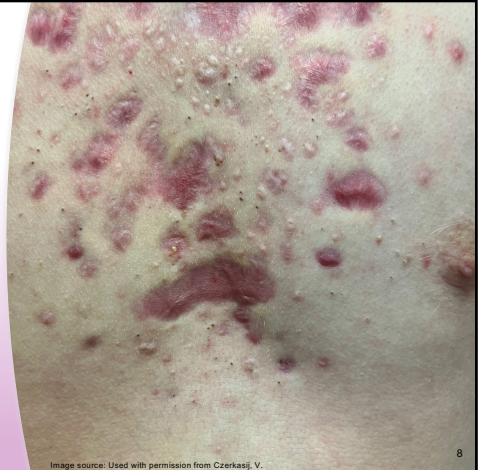


Image source: Used with permission from Czerkasj, V.

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Acne Fast Facts

- Women affected slightly more than men, especially when older (age 40+ years).
- Not common in some non-Westernized peoples
- Cleopatra used sulfur soap.
- From Greek "ionthos" for "facial eruption," or Latin "acnae"
- Bacteria first observed in acne in the mid-1880s.



Image source: Le Grignon, (2012). Cleopatra. (<https://en.wikipedia.org/wiki/Cleopatra>) in the public domain.

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Psychological Effects of Acne

- Acne can have profound social and psychological effects not related to its clinical severity.
- Affects around 85% of people between ages 12 and 25 years.
- Appearance linked to peer status
- Distress may result in depression and suicidal ideation.

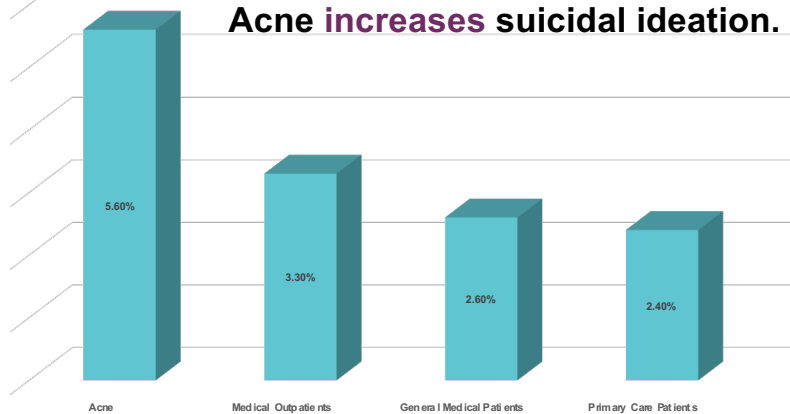


Image source: Used with permission from Getty Images

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Acne increases suicidal ideation.



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Psychological Impact of Acne (continued)

- Teens say parents misguided in perceptions of severity
- Only 30% of teens seek medical help, 70% too discouraged.
- Of the teens who sought medical help, 91% reported improvement.
- Huge over-the-counter market
- Studies show severity of acne can affect job seekers.

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The Descriptive Language of Acne

- Whiteheads (closed plugged pores) – Closed comedones
- Blackheads (open plugged pores) – Open comedomes
- Small red, tender bumps (papules)
- Pimples (pustules) are papules with pus at their tips.

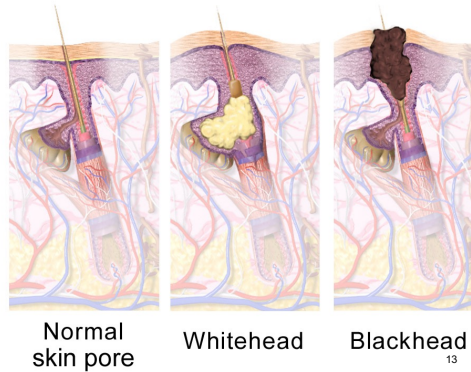


Image source: Blausen.com staff (2014). "Medical gallery of Blausen Medical 2014". WikiJournal of Medicine 1 (2). DOI:10.15347/wjvm/2014.010. ISSN 2002-4436. Acne. (<https://en.wikipedia.org/wiki/Acne>) CC BY 3.0

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The Descriptive Language of Acne (continued)

- Large, solid, painful lumps under the skin (nodules)
- Painful, pus-filled lumps under the skin (cystic lesions)
- Scars: Fixed, opened follicles
- Keloids: Thickened collagenized papules and patches

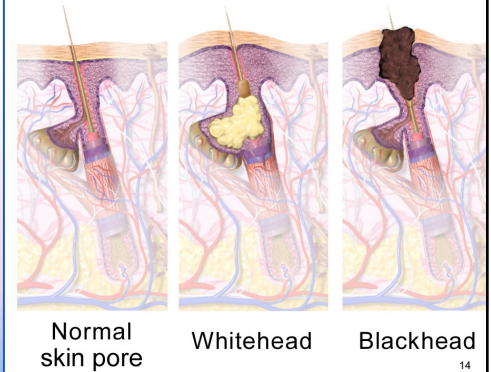


Image source: Blausen.com staff (2014). "Medical gallery of Blausen Medical 2014". WikiJournal of Medicine 1 (2). DOI:10.15347/wjvm/2014.010. ISSN 2002-4436. Acne. (<https://en.wikipedia.org/wiki/Acne>) CC BY 3.0

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Learn the Language

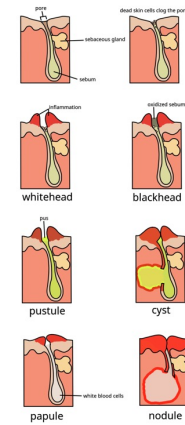


Image source: BedrockPerson. (2017). Acne comedones. (<https://en.wikipedia.org/wiki/Acne>) CC BY-SA 4.0.

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Take a Closer Look:
What are some of the features here?



Image source: Bangali, R. (2015). Moderate Acne. (<https://en.wikipedia.org/wiki/Acne>) CC BY-SA 4.0

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Another Case Study:
What are the patient's concerns?

Image source: Heilman, J. (2010). Severe Case of Cystic Acne. (<https://en.wikipedia.org/wiki/Acne>) CC BY-SA 3.0

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Risk Factors

- **Age:** People of all ages can get acne, but it's most common in adolescents.
- **Hormonal changes:** Puberty, menopause, testosterone/estrogen treatment, or pregnancy
- **Family history:** If both parents had acne, you're also likely to develop acne.
- **Pressure on skin:** Oily places breed acne.
 - Hairstyles, caps, headphones, cellphones, helmets, tight collars and backpacks
- **Diet:** Sugar and dairy are highly inflammatory and promote hormonal androgenetic excess.

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Acne Follows Distribution of Sebaceous Glands



Image source: Heilman, J. (2010). Cystic Acne. (<https://en.wikipedia.org/wiki/Acne>) CC BY-SA 3.0

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***C. acnes* thrives in the anaerobic (low oxygen) environment found deep within the follicle. It is a rod shaped, gram-positive bacteria.**

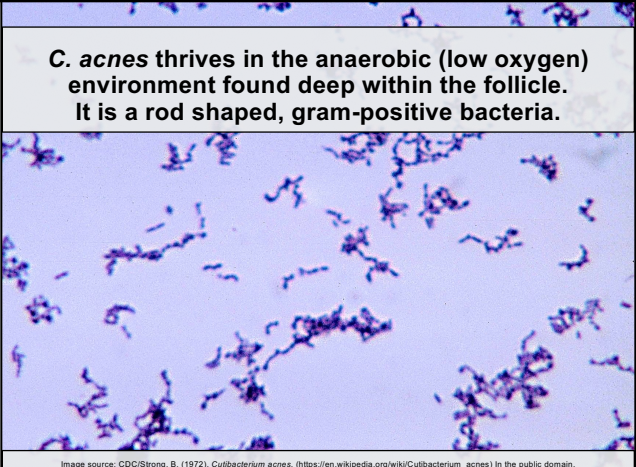


Image source: CDC/Strong, B. (1972). Cutibacterium acnes. (https://en.wikipedia.org/wiki/Cutibacterium_acnes) in the public domain.

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Acne: Multi-Factorial Inflammatory Disorder

- Excess oil (sebum) production
 - Hair follicles clogged by oil and dead skin cells
 - Bacteria (acne)
 - Inflammatory cascade
- Diet research continues to support dairy avoidance.
 - Think reverse engineering: If the previous four are the problem, going forward, how do we treat acne?

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Inflammatory scarring is a challenge.



Image source: NicosLakumbros. (2020). Teenage Acne. (<https://en.wikipedia.org/wiki/Acne>) In the public domain.



Image source: Used with permission from Czerkasj, V.

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Classic mild-to-moderate acne on back, often follows distribution of sebaceous glands.

Image source: Used with permission from Czerkasj, V.

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Acne Treatment

- “Domolene” popular mid-20th century topical treatment for acne
- It was simple hydrocortisone, which assisted in mild inflammation but did not address the acne proliferation or sebum production.
- Eventually caused atrophy



Image sources: Wellcome Collection gallery (2018-03-30): <https://wellcomecollection.org/works/bs6h2h52> (2014) Jar of “Domolene” ointment (https://commons.wikimedia.org/wiki/File:Jar_of_%27Domolene%27_ointment_London_England_1945-1965_Wellcome_L0058221.jpg) CC-BY-4.0

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Social Media Recommendations for Acne Treatment: Recommend to Avoid Social Media!

- Do-it-yourself (DIY) “skinfluencers” share expertise with no real credentials except for millions of followers.
- Their main shtick: You can use “natural” products in your pantry or fridge to treat your skin issues, especially acne.
- The Great Toothpaste Hoax
- Band-Aids on Every Pimple Prank
- Salt-water Spritzing Swindle
- The Lemon Juice Scar Treatment Fraud
- Drinking Chlorophyll Water Con
- The Skin Icing Dupe
- The Popular Potato Slice Ruse

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The Major Treatment Categories for Acne

- Topical: Drying agents and topical antibiotic
- Oral antibiotics
- Hormonal/oral contraceptive
- Anti-inflammatory products
- Isotretinoin
- Combination therapy including diet
- Light and thermal devices

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Realistic Treatment Goals with Acne

- Improve and control the condition for flares.
- Prevent the development of new lesions and scarring.
- Treat postinflammatory hyperpigmentation, if present.
- Avoid adverse effects from the medication regimen.
- **DO NOT DO MONOTHERAPY TREATMENTS.**

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Topical Therapy for Acne

- Benzoyl peroxide (BPO) is bactericidal.
- Has never been shown to induce resistance
- More effective than topical clinda- and erythromycin in multiple studies
- Multiple concentrations and combinations in various vehicles, both prescription and OTC
- Can be applied topically to affected areas once a day
- Remind patients that it bleaches clothing!

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Benzoyl Peroxide: Multiple Vehicles

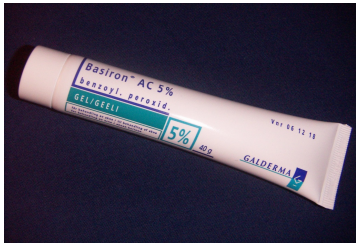


Image source: Obit. (2006). Tube of Basiron. (<https://en.wikipedia.org/wiki/Acne>) CC BY-SA 3.0

- As of 2011, FDA issued final rule that BPO 2.5% to 10%.
 - In Wikipedia Acne. (2023, August, 23). <https://en.wikipedia.org/wiki/Acne>
- % as single agent is “safe and effective” as over-the-counter topical acne drug product

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Benzoyl Peroxide: Multiple Vehicles (continued)

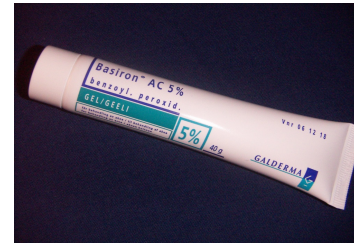


Image source: Obit. (2006). Tube of Basiron. (<https://en.wikipedia.org/wiki/Acne>) CC BY-SA 3.0

- Standard baseline ingredient for treatment of mild to moderate acne
- Bactericidal and sebum drying
- Reminder to always moisturize
- First used in 1958 as Rx

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Salicylic Acid

- From Latin “salix” or “willow tree”; basic compound of aspirin
- Breaks down oily sebum in clogged pores, effective at 2%
- 10% to 40% will dissolve warts.
- Begin with limited use to assess skin irritation possibilities.
- Considered bacteriostatic



Image source: Obit at English-language Wikipedia. (2006). Salicylic acid. (https://en.wikipedia.org/wiki/Salicylic_acid) CC BY-SA 3.0

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Clindamycin 1% Gel, Foam, Solution, Cream, Lotion

- Often applied to forehead, cheeks, chin, and nose
- Works best when combined with BPO use
- Generic, bacteriostatic effect



Image source: Briannafo0520. (2019). Clindamycin phosphate topical solution (https://commons.wikimedia.org/wiki/File:Clindamycin*.jpg) CC BY-SA 4.0

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Azelaic Acid Foam or Cream



- Azelaic acid both bacteriostatic and bactericidal, no inducement of antibiotic resistance
- Dicarboxylic acid, commonly found in wheat, rye, and barley
- Superior anti-inflammatory properties
- Not studied in pregnancy

Image source: Original book source: Prof. Dr. Otto Wilhelm Thomé Flora von Deutschland, Österreich und der Schweiz 1885, Gera, Germany. (<https://en.wikipedia.org/wiki/Barley>) In the public domain.

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First-generation Retinoid Tretinoin: Multiple Vehicles

- Tretinoin – Vitamin A derivative for both inflammatory and non-inflammatory acne.
 - Often used in conjunction with other topicals to enhance follicular penetration
- Avoid with pregnant, breast-feeding women
- Photosensitivity is high
- Effective, multiple vehicles and concentrations combined with oral antibiotics

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First-generation Retinoid Tretinoin: Multiple Vehicles (continued)

- Excellent for photoaging problems and PIHP
- Developed in late 1950s with use on prison inmates in Pennsylvania
 - First prescribed in 1962
- In the “Top 200” of all-time prescriptions

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Second-generation Retinoid: Tazarotene

- Tazarotene 0.1% and 0.05% in cream, gel and foam bases
- Familiar in psoriasis and photodamage treatment
- Common adverse effects include worsening acne, sun sensitivity, dry skin, itching, redness, drying and cracking of skin.
- Adverse effects generally decrease after first 2–4 weeks of use.

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Third-generation Retinoid: Adapalene 0.1% OTC and 0.3% Rx

- Synthetic retinoid that limits photosensitivity adverse effect: The tolerable retinoid
- Very helpful in bumpy, sharp keratotic papules
- Enhances topical clindamycin gel/lotion use
- More stable chemical structure allows it to be combined with benzoyl peroxide in same formulation.

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Fourth-generation Retinoid: Rx 0.005% Trifarotene Cream

- Oral and topical dapsone used for acne since early 1950s.
- A sulfur compound antibiotic with bacteriostatic action, used chiefly in the treatment of leprosy in the past.
- Effective for inflammatory acne
- Minimal absorption, can be used twice a day
- Cannot be combined with BPO, as the skin can turn bright orange
- Controversy in dermatology if first- or second-line therapy
- Common adverse effects include nausea and loss of appetite.

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Dapsone 5% and 7.5% Cream and Gel

- Indicated for the topical treatment of acne in people ages 9 years and older
- Contraindicated in pregnancy
- Little photosensitivity though still recommend evening application
- Superior results on truncal and facial acne
- Overall, considered quite gentle

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Androgenetic or Hormonal Therapy for Acne: An Option for Females

- Spironolactone: Potassium-sparing diuretic and aldosterone blocker
- Not FDA-approved for acne
 - Longtime "well-established practice"
- Use for acne considered off-label in dermatology.
- 25 mg and 50 mg; 1 by mouth once or twice a day to begin and can be increased to 100 mg 1 PO qday.
- Also effective in female pattern hair loss, facial hirsutism and of course, at higher doses, blood pressure

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Androgenetic or Hormonal Therapy for Acne: An Option for Females (continued)

- Common adverse effects include...
 - More energy, tiredness, nipple tenderness, more frequent urination and dry mouth
- Blocks the conversion of testosterone to dihydrotestosterone
 - Responsible for most hair growth alterations and acne

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Additional Information

There are 4 FDA-approved combined oral contraceptives for treatment of acne. These take time **and** dermatology is leery.

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Additional Information (continued)

- Newest topical cream: FDA-approved antiandrogen clascoterone 1%, for ages 12 years and older
 - Blocks dihydrotestosterone (DHT) without secondary hormonal issues
 - Good secondary product, being used also in rosacea
 - Does not have drying as its primary action, but sebum reduction and not an antibiotic.
 - Some feel it is more effective in males over females.

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The Relapsing Female Patient

- Remember that pediatric endocrinology is your friend and an excellent referral option for the patient with suspected polycystic ovarian syndrome (PCOS).
- 17-hydroxylase deficiency should be considered.
- Congenital adrenal hyperplasia?
- Is there increased hirsutism?

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Controversial: The Use of Oral Prednisone for Treating Acne

- Rapid-acting corticosteroid, very helpful as anti-inflammatory
- Key questions: Amount and time
- 5–10 mg; 1 PO qday for a month concomitantly with antibiotic or isotretinoin reasonable for severe acne
- Beware of rebound effect
- Overall, not a frontline recommendation

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Oral Antibiotic Therapy in Acne

- Doxycycline and minocycline extended release effective 1 mg/kg/day
- Markedly lower adverse effects
- Use in moderate to severe acne
- Enteric-coated doxycycline results in less GI adverse effects than immediate release formulations.
- Minimum one-month therapy; maximum three months
- Classic adverse effects are nausea, vomiting, diarrhea, dizziness and photosensitivity.
- Tetracycline not used much; new Rx sarecycline oral antibiotic is fourth generation of the -cyclines.

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How does acne become resistant to antibiotics?

- New resistant strains
- Failure to consider rare colonization
- Inadequate drug potency
- Inadequate treatment duration
- Inadequate patient education and compliance

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The Acne Vaccine

- Recent promising results in mice and humans
- Avoids topical regimens and improves compliance
- Limits use of antibiotics and subsequent resistance
- What are the results in the human body long-term?
- Should we neutralize a stable community of normal skin bacteria that is known to protect the skin from colonization by more harmful micro-organisms?
- Research continues as should questions.

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**Back to This:
Severe acne may increase risk for attempted suicide.**



Image sources: Used with permission from Czerkas, V.

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The Isotretinoin Challenge: Will we practice on the evidence?

- 2/4/08 (San Antonio) – In the largest study of its kind, more than 9.6 million patient visits "failed to demonstrate an association between isotretinoin use and increased depression or suicide."

- Solid answer to antibiotic resistance
 - American Academy of Dermatology 66th Annual Meeting
 - Developed over 40 years ago, one of the safest and most predictable medications of the 20th century

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The Seminal *New England Journal of Medicine* Study 2005

- Nearly all patients achieve initial clearing of acne.
- 60% observe complete remission following one course of isotretinoin.
- 30% developed less severe acne.
- 10% relapse to warrant further treatment or an additional course of isotretinoin, without additional newer adverse effects.

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**The Seminal *New England Journal of Medicine* Study 2005
(continued)**

- Isotretinoin-related depression, in one study, was found as "an idiosyncratic side effect." Often anxiety of potential adverse effects can bring on acne and depression, creating more anxiety.
 - Affects approximately 1% of patients on isotretinoin

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Isotretinoin is a vitamin A derivative.

- Brand names include Amnesteem®, Roaccutane®, Sotret®, Claravis™, Absorica® and Zenatane™, among others.
- The iPledge program protects patient and provider.
 - Blood work to begin and once later in the 4–5-month course of treatment
- Adverse effects are generally predictable and consistent
 - Dry eyes, nose, lips and skin

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Isotretinoin is a vitamin A derivative. (continued)

- Severe adverse effects
 - When drinking alcohol, photosensitivity, and birth defects
- Females must have monthly pregnancy test.
 - Can only dispense 30 pills at one time
- Mood improvement often observed.
- Be wary of bipolar, noncompliant, IBS, Crohns, hepatitis and the flippant.
 - Always take with full meal.

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The iPledge Program, Summarized

- | | |
|---|--|
| <ul style="list-style-type: none">• Blood work prior to prescribing for liver and lipid abnormality• For females, two negative pregnancy tests and monthly thereafter• Two forms of birth control• iPledge online accessed monthly | <ul style="list-style-type: none">• Prescribe for 30 days, no refills.• Product dispensed and obtained within 7 days of qualification.• Patient and parent educated with verbal discussion and written contract of warnings and hazards. |
|---|--|

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The Skinny on Acne and Diet

- Foods that increase insulin levels magnify male hormone effect
- Dairy products boost insulin and are high in hormones made by pregnant cows that produce milk.
- Avoid dairy and sugar to lessen oil stimulus production.



Image source: Hansen, K. (2009). Cow (https://commons.wikimedia.org/wiki/File:Cow_(Fleischvieh_breed)_Oeschinense_Slaunger_2009-07-07.jpg) CC BY-SA 3.0.

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Are there recommendations for reliable OTC skin maintenance products? Absolutely!

- Consider non-soap cleansers and sulfur-based soaps.
 - Combination products with salicylic acid + niacinamide
 - Niacinamide 10% with 1% zinc
 - Vitamin C + vitamin E serums
 - Combined are more effective.
- Retinoids + ceramides
 - Glycolic washes and foams
 - Hyaluronic B5 serums
 - All combinations should not be used in combination or succession with BPO.

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Rosacea: An Introduction



Image source: Used with permission from Czerkasi, V.

- Rosacea is an inflammatory condition as opposed to acne, which is primarily a bacterial disease.
- Older dermatology wrongly titled this condition “**acne rosacea**,” though the treatment paradigms are quite different.
- They are both discouraging and require attention to care and detail.

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Rosacea: An Introduction (continued)

- April is Rosacea Awareness month: Why do you think?
- Affects 16 million Americans
- The goals are control, not cure.
- 76% of rosacea patients experience lowered self-esteem and self-confidence.
- Pt must primarily become educated in daily skin care and trigger control.



Image source: Used with permission from Czerkasi, V.

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Famous People with Rosacea



Left image source: Defense (2019). Prince Harry, Duke of Sussex. (https://en.wikipedia.org/wiki/Prince_Harry,_Duke_of_Sussex) In the public domain.
Right image source: Skidmore, G. (2016). Bill Clinton. (https://en.wikipedia.org/wiki/Bill_Clinton) CC BY-SA 2.0.

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Famous People with Rosacea



Image source: Gabbot (2018). Renee Zellweger. (https://en.wikipedia.org/wiki/Renee_Zellweger) CC BY-SA 2.0

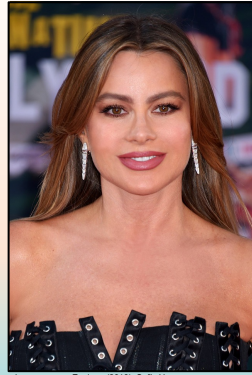


Image source: Toglietti (2019). Sofia Vergara. (https://commons.wikimedia.org/wiki/File:Sofia_C3%A0_Vergara_2019_by_Glenn_Franco.jpg) CC BY-SA 4.0

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Rosacea is presented on the one place most difficult to hide from the public – The Face.



Image source: User with permission from Czerkasz, V.

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Rosacea Background

- Rosacea is an inflammatory disease that affects primarily women 8>1 over men.
- Scots/Irish, Dutch/German and Scandinavian peoples ages 40 and older are the target population.
- Worst two triggers: Uncontrolled sunshine and increased stress.
- Other common triggers are...
 - Coffee, chocolate, caffeine, hot foods, spicy foods, acidic foods (i.e., tomatoes, citrus, pineapple and strawberries) and wines
- Hispanic, Asian, and Black populations are not immune and often misdiagnosed, **especially for acne**.

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Rosacea Types and Variants

- Erythematotelangiectatic rosacea (ETR) has facial redness, flushing and visible blood vessels because of the ongoing inflammation.
- Papulopustular appears as acne in middle-aged women.
- Phymatous rosacea affects many men and thickens the nose.
- Ocular rosacea centers peri-orbitally and feels like grains of sand.

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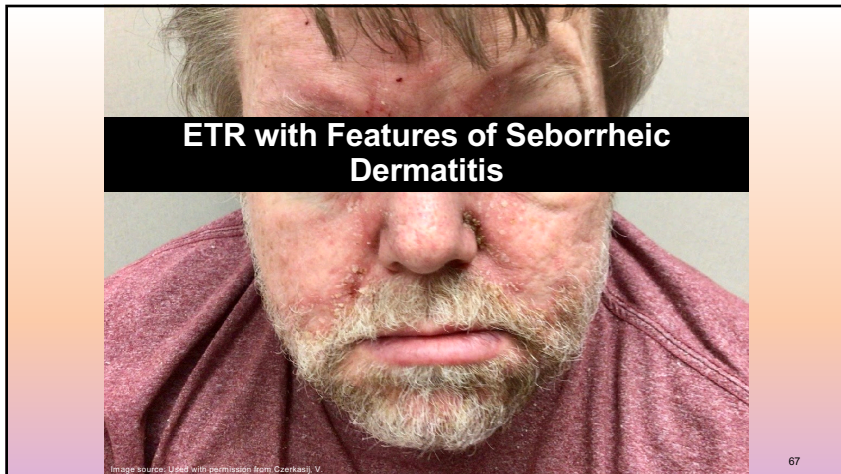
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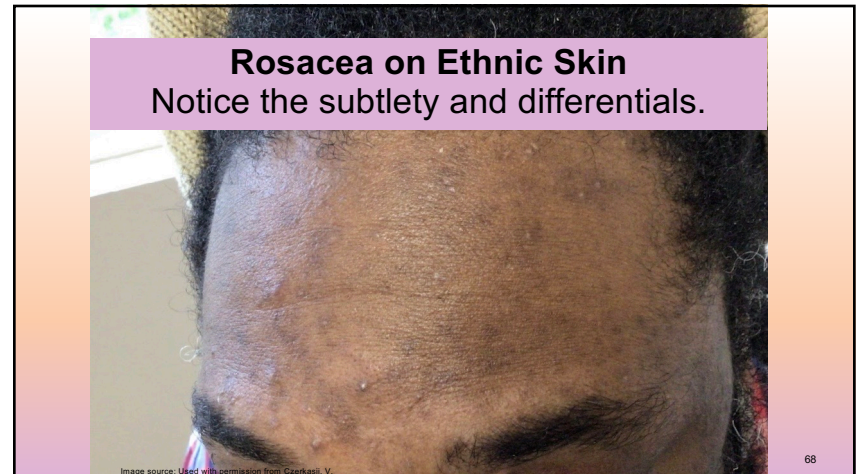
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Papulopustular Rosacea



Image source: Used with permission from Czerkasij, V.

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The Rosacea Challenge

Multiple challenges exist to address...

- Ongoing discussion of cause
- Provider inexperience to diagnose accurately
- Treatment combinations
- Encouraging lifestyle change



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Ocular Rosacea

- Differentials include contact, perioral or seborrheic dermatitis, **or** true conjunctivitis.
- Itchy, scratchy, gritty eyes with swollen eyelids and tearing.
- 40 mg doxycycline helpful, as is ketoconazole 2% shampoo wash.

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Ocular Rosacea (continued)

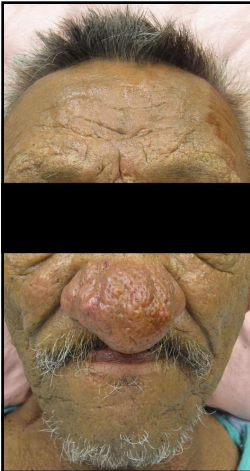
- Can occur prior to skin disease
- Abnormal Schirmer's test in 40% rosacea patients
- Topical corticosteroid eye drops effective for pruritus relief.



Image source: Used with permission from Czerkasij, V.

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Phymatous Rosacea

- Constant swelling due to untreated rosacea centered on the nose will result in permanent thickening and redness.
- Associated with difficulty breathing and increased snoring

Image source: Heilman, J. (2013). Rhinophyma. (<https://en.wikipedia.org/wiki/Rhinophyma>) CC BY-SA 3.0

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Phymatous Rosacea

Primarily in men and while unfairly and unkindly referred to as “Gin blossom” or “Rummy nose”, and more recently, “Rhinophyma.”

There is a quick and effective plastic surgery technique available to improve this condition.




Image source: Web Gallery of Art. Ghirlandaio's An Old Man and His Grandson, (1490). Rhinophyma. (<https://en.wikipedia.org/wiki/Rhinophyma>) In the public domain.

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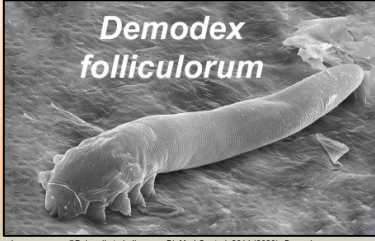
Rosacea in History: Rembrandt



Image source: Rembrandt's Self Portrait (1657) (left); Rembrandt's The Spectacles-pedlar (right) (1624). (https://en.wikipedia.org/wiki/List_of_paintings_by_Rembrandt) In the public domain.

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Demodex mites thrive in some rosacea.



Demodex folliculorum

Image source: ©Palopoli et al.; licensee BioMed Central. 2014 (2020). Demodex folliculorum. (<https://en.wikipedia.org/wiki/Demodex>) CC BY 4.0




Image source: Mills, J. (2005). Demodex canis. (https://commons.wikimedia.org/wiki/File:Demodex_mite_1.JPG) CC BY-SA 3.0

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Classic Topical Therapies for Rosacea

- Metronidazole 0.75% and 1% cream and gel
 - Applied once or even twice daily
- Prescription brimonidine 0.33% is a topical alpha-adrenergic agonist gel for the treatment of persistent erythema (redness) in rosacea.
 - Applied once daily or as needed
 - Duration of peak effectiveness is three to six hours.

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Classic Topical Therapies for Rosacea (continued)

- Oxymetazoline 1% cream also reduces flushing by constricting blood vessels.
 - Results occur within 12 hours after use.
 - The effect on the blood vessels is temporary, so the medication needs to be applied regularly to maintain improvements.

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A Popular Rosacea Addendum Product

- Sulfacetamide sodium/sulfur is a topical Rx medication used to treat rosacea.
 - Effective for acne and seborrheic dermatitis
 - It is available in a variety of preparations including creams, gels and cleansers.
- Also available in several dosages – Most common is 10% sulfacetamide sodium/ 5% sulfur
 - It is applied once or twice daily.
 - Multiple OTC bar soap forms available over the counter.

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Key Therapies for Rosacea

- Prescription azelaic acid foam and gel 15% and 20%
- Twice daily and avoid the eyes
- Decreases redness, swelling and blistering
- Hypopigmentation in darker skin is possible but rare.
- Look for any product with niacinamide as a co-ingredient.

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Ivermectin 1% Cream for Rosacea: Why?

- Prescription ivermectin 1% cream can be used daily for rosacea control.
- Marketed originally for its helpful anti-inflammatory effects.
 - The reason for an antiparasitic was not lost on some providers.
- Generally, a very well-tolerated and helpful topical with blister and redness reduction when regularly used.
- Main complaints include drying and irritation.

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Rx 5% Benzoyl Peroxide Cream for Rosacea

- Although BPO may have previously been thought of as too irritating for rosacea skin, the BPO in this Rx product is formulated differently.
- Visible results as early as 2 weeks with blistering reduced by nearly 70% in 12 weeks.
- Nearly 50% of trial participants had clear or almost clear skin in 12 weeks.
- After 52 weeks of use in clinical trials, most people had mild adverse effects and were able to tolerate the medication daily.

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Why do we use “-cyclines” for rosacea flares if rosacea is NOT bacterial?

- The anti-inflammatory effect of low-dose doxycycline and minocycline are very helpful for reducing flares.
- Recommend 100 mg 1 PO qday for up ten days for flares.
- Even better, consider sub-microbial 40 mg doxycycline 1 PO qday for one-month.
 - Since 2006, once daily 40 mg extended-release doxycycline has been the only oral treatment approved by the FDA.

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On the Horizon for Rosacea Treatments

- Topical minocycline foam 4% was here during COVID and then disappeared as the company is restructuring. It may be back.
- The mainstay of daily therapy remains gentle cleansers and careful treatment of the facial skin.
- Stress and anxiety control is necessary for a foundation of maintaining clear skin.
- Sunscreen application of 30 SPF daily is part of the lifestyle.

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End of Presentation Thank you for your time and attention.

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Rosacea Resources

- National Rosacea Society has free smart phone app for patients. See www.rosacea.org or popular app sites
- Rosacea Resource Center for providers at The American Academy of Dermatology Association, <https://www.aad.org/public/diseases/rosacea>

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