Treatment of Acne
Not just for teenagers...

• There are several therapeutic regimens for acne, most of which focus on prevention of future eruptions rather than on treatment of present lesions. This is the reason that the majority of treatments take eight weeks to work.

• Salicylic acid, benzoyl peroxide, and steroids treat lesions already visible

• Steroids, although frequently used, are not advised because they can lead to “steroid acne”
Comedones

Figure 9-3.
Multiple comedones in a patient with a history of acne.

Papules and Pustules

Figure 9-4.
Multiple papules and pustules in an acne patient.
Treatment of Acne

• Five Basic principles govern the successful treatment of acne
The Five Steps

• Step I: Normalizing keratinization/exfoliation.
  – Prevent exfoliated keratinocytes (dead skin cells in SC) from sticking together
  – Retinoids – cystic acne
  – Retinoids achieve this goal by reducing the surface charge of keratinocytes
    • Allows antibiotic to reach targeted area
Products that Block Step I

- Tretinoin (Avita, Renova, Retin-A, Retin-A Micro)
- Adapalene (Differin™)
- Tazarotene (Tazorac™)
- Retinol, retinyl linoleate, retinyl palmitate
- Oral retinoids: Isotretinoin (Accutane™)
Retinoids
Retinoids

- Primary use – treatment of acne
- Recent application – treatment of photoaged skin
- 1931 - Karrer et al. determined the structure of retinol
- Commercially available after 12 years
- Now over 2500 products
- Teratogenic
Three generations of retinoids.

Figure 12-1. Chemical structures of the three generations of retinoids. Addition of aromatic rings has made third-generation retinoids more stable and more specific for certain receptors.
The Five Steps

• Step II: Eliminating or reducing *Propionibacterium acnes*
  – Antibiotics or benzoyl peroxide attack bacterial population, thereby decreasing the level of inflammatory extracellular products induced by *P. acnes*
  – 60% of acne patients exhibit antibiotic-resistant strains of *P. acnes*
  – Benzoyl peroxide kills bacteria by generating oxygen radicals
Products that Affect Step II

- Topical antibiotics: clyindamycin (Cleocin T™), ATS solution, Benzamycin
- Benzoyl peroxide
- Azelaic acid (Azelex™)
- Oral antibiotics
Benzoyl peroxide generates oxygen radicals and may lead to exaggerated or accelerated aging of the skin.
The Five Steps

• Step III: Removing the material that clogs the pores
  – Comedolytics such as salicylic acid (BHA) and alpha-hydroxy acids are used to loosen keratinocytes and “unclog” the pores
  – BHA is more effective in reducing the number of comedones than are AHAs
Products that Affect Step III

- Retinoids
- Salicylic acid (BHA)
- Alpha-hydroxy acids (glycolic, lactic)
- Azelaic acid
The Five Steps

• Step IV: Attacking the inflammatory response
  – Salicylic acid is an effective inflammatory product
  – NSAIDs (ibuprofen, e.g.) combined with antibiotics
  – Hydrocortisone not recommended → skin atrophy
Products that Affect Step IV

• Salicylic acid (over-the-counter acne wash)
• In-office BHA peels
• Oral NSAIDs
AHAs vs. BHAs

- AHA – water soluble
- BHA (salicylic acid) – lipid soluble
  - Suited for penetration into the sebaceous material in the follicles, making it able to induce exfoliation within the pore
  - Anti-inflammatory activity
The Five Steps

• Step V: Decreasing the level of sebum
  – Stabilize sebaceous gland activity
• Products that Affect Step V
  – Oral contraceptives
  – Retinoids
Moisturization and Acne

• Skin dryness is an important factor in exacerbating the pathogenetic cycle of acne (Swinyer, 1980)
• An emollient facial wash outperformed pure soap and a benzoyl peroxide wash in decreasing open comedones and papules (Jackson, 1999)
• Wash with noncomedogenic, hydrating agent
Acne Prevention Regimen

• AM
  – Washing with a mild 2% salicylic acid cleanser
  – Applying a topical antibiotic solution or azelaic acid
  – Applying a sunscreen SPF 30+ with moisturizing cream (unless skin is very oily, in which case the patient should try lotion or gel)
Acne Prevention Regimen

• PM
  – Washing with the same salicylic acid cleanser
  – Applying a topical retinoid
Common Acne Variants

- *Acne cosmetica.*
- *Acne detergicans*
- *Rosacea*
  - Presents in adults 25-60 years
  - AHAs and retinoids bothersome
  - Antibiotics, BHAx, laser treatment
Summary

• Acne is a function of hereditary, hormonal, and occasional exogenous factors.
• Cells turn over too quickly and clump together – resulting in an inhibition of the usual passage of sebum and a blockage at the follicular opening.
• This sets the stage for the involvement of *P. acnes* and subsequent inflammation.