Skin and Dermatology: Conventional and Compounded Formulations for Cost-effective and Therapeutic Outcomes

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Topics to cover
- Eczema
- Psoriasis
- Rosacea
- Acne
- Scars
- Post-procedure
- Anti-Aging
- Melasma
- Molluscum
- Hyperhidrosis

- Pain
- Warts
- Nail Fungus
- Itch
- Hirsutism
- Actinic Keratosis
- Hormones
- Anal Fissures
- Topical Anesthetics
- Hyper-Pigmentation
- Hormones

Skin anatomy and physiology
The study found that two-thirds of patients who do not adhere to their acne medication wish to take the drugs but cannot afford to fill the prescription and that most do not tell their physician.

Some health insurance will only cover certain medications if the prescribing physician has obtained prior authorization, and one in five patients reported issues with this authorization process, such as communication problems between the physician's office and pharmacy staff, or confusion about their own role in the process.

The prices of 46% of common generic medications in dermatology increased by more than 100% between 2011 and 2012, and prices of branded acne medication increased by 195% between 2009 and 2015.

Manufactured products for skin delivery

- (eflornithine) 13.9% 45gm - $185
- (Ketoconazole) 2% Gel 45gm - $680
- (metroindazole) 1% gel 60gm - $375
- (ivermectin) 1% cream 30 gm - $403
- (azelaic acid) 20% Cream 50gm - $600
- (azelaic Acid) 15% Cream 30gr - $243
- (Sodium Sulfacetamide) 10% Cream 57gm $470
- (estrogens, conjugated) 30 gm $414
- (testosterone) 1.62% Gel Pump 75 gm - $685
Manufactured products for skin delivery

- (efinaconazole) 10% Topical Solution 4ml - $632
- (tretinoin) 0.05% Lotion 45gm - $130
- (nitroglycerin) 0.4% ointment 30 gm - $614

How to improved patient therapeutic outcomes

- Interventions include
  - asking patients to call back,
  - suggest shopping around pharmacies to try and find the medication at a lower price,
  - suggest an alternative medication if the first choice is not covered by the patient’s insurance,
  - And offering coupons to subsidize the cost,
  - Offer a compounded formulation

Compounding

- Triad
  - Do not copy a commercially available product on the market
  - Do not compound for office use
It’s all about the base

- Talk to an experienced compounding pharmacist about the proper base to put API’s (Active Pharmaceutical Ingredient) in.
  - Alcohol free – better stability and less irritation (i.e. testosterone)
  - Moisturizes and improves red, blotchy skin (i.e. Acne/Rosacea)
  - Deep-penetrating (pain medications)
  - Deep-penetrating for API’s in high concentrations

Acne - considerations

- Increase concentration of a topical antibiotic
  - Clindamycin
- Change the concentration of an API for customized patient regimen
- Add an ingredient that reduces redness
  - Niacinamide
- Remove fragrances/alcohol
  - (or add fragrance – for spironolactone)
- Combine ingredients for ease of administration (compliance)
  - Tretinoin with an antibiotic
- Anhydrous, longer BUD for less-frequent refills
Acne Cash Options

- Clindamycin 2%/Sulfacetamide Sodium 10%/Sulfur 5% Topical cream
- Benzoyl Peroxide 2.5%/Tretinoin 0.05% topical cream
- Clindamycin 2%/Benzoyl Peroxide 5%/Niacinamide 4% topical
- Azelaic Acid Alternative
- Niacinamide 5%/Biotin 0.1% Potassium Azelaoyl Diglycinate topical cream

Potassium azelaoyl diglycinate, obtained by reacting the chloride of azelaic acid with two molecules of glycine and KOH, a new generation ingredient.

Eczema

- Also known as atopic dermatitis, is an inflammatory skin condition that affects both children and adults.
- People with eczema generally suffer from dry, sensitive skin, and intense itching. The itching may be severe enough that scratching occurs, leading to bleeding, damaged skin and subsequently more inflammation and itching.
- This is called the itch-scratch cycle. Eczema is a chronic, relapsing condition that is not contagious.

Eczema

- How can a compounding pharmacist help
  - Avoid overuse of topical corticosteroids, consider vitamin B12 for any age
  - Oral pro-biotics
  - Combination cream with different API's
Eczema

- Cyanocobalmine 0.07% topical cream
- Naltrexone 1% topical cream
- Zinc Pyrithione 0.2%/Clobetasol Propionate 0.05% topical cream
- XemaTop base
  - natural ingredient is avenanthramides (from oats).
  - Avenanthramides have been shown to have anti-inflammatory, antiproliferative and anti-itching effects. The benefit for patients with psoriatic or eczema flare-ups, using XemaTop alone several times a day can help control the symptoms.

Psoriasis

- Psoriasis is usually identified by the clinical appearance of characteristic red, inflamed, raised plaques—scaly skin lesions that constantly shed. However, it is best defined as a unique skin disease by a set of underlying cellular changes.

Psoriasis

- Coal Tar Topical Solution 5%/Salicylic Acid 6%/Clobetasol Propionate 0.05% Topical Cream
- Zinc Pyrithione 0.2%/Clobetasol Propionate 0.05%/Cyanocobalamin 0.07% Topical Cream
- Coal Tar 15%/Betamethasone .03% Topical Cream
Rosacea

• Rosacea is a common dermatological condition that predominantly affects the central regions of the face. Rosacea affects up to 3% of the world's population and a number of subtypes are recognized. Rosacea typically affects fair skin people.
• Redness on the cheeks, nose, chin or forehead. Small visible blood vessels on the face, bumps or pimples on the face, watery or irritated eyes.

Common Commercial Therapies for Rosacea

• (metronidazole) 1% gel 60grams $375
• (Ivermectin) 1% cream 30grams $370
• brimodidine) 0.33% 30grams $527

Rosacea cash options

• Spironolactone 5% Topical Cream
• Oxymetazoline HCL 1%/Ketotifen 0.05%/Tee Tree Oil 5% Topical
• Metronidazole 1%/Niacinamide 4% Topical Cream
• Niacinamide 5%/Biotin 0.1%/Potassium Azelaoyl Diglycinate Topical cream
• Ivermectin 1%/Metronidazole 0.75% Topical cream
• Ketotifen 0.05%/Metronidazole 0.75% Topical Cream
• Azelaic Acid 18%/Brimonidine Tartrate 0.4%/Niacinamide 4% Topical Cream
• Azelastine HCl 0.15%/Brimonidine Tartrate 0.5% Topical Cream
Women - Vaginal
- Vaginal dryness
  - Estriol/testosterone vaginal cream or vaginal troche
  - DHEA
- Vaginal itching
  - Estriol topical
  - Ketotifen 0.4%
  - Betamethasone 0.05%
- Non-Hormonal Vaginal Cream for dryness
  - Vitamin E & Vitamin A in a Na Hyaluronic acid Topical Cream

Women – cont...
- Vulvodynia - Amitriptyline HCl 2.5%/Baclofen 2.5%/Gabapentin 2.5% Vaginal Cream
  - Ketamine 0.5%
  - Diazepam 1%
  - Gabapentin 6%
- Chronic vaginal yeast infections
- Lichen Sclerosis
  - Tacrolimus 0.03%
  - Naltrexone 1%
  - Clobetasol 0.05%

Men - hormones
- Testosterone custom dose topical creams
- Effective base
Onychomycosis

- Theazole antifungals are the first line of therapy for topical use.
- Ibuprofen has been studied at a different strength with azoles and results showed a synergistic anti-fungal action when used together.
- Urea is added to soften the nail so that topical compounds have better penetration, permitting the antifungals better access to the infected area.
- Dimethyl sulfoxide (DMSO) as a wetting agent for the formulations provides anti-inflammatory benefit, in addition to its penetration enhancer abilities.

Nail fungus cash options

- Terbinafine 1%/Fluconazole 3%/Ibuprofen 2%/Itraconazole 1% Nail DMSO Suspension
- Ketoconazole 2%/Urea 40% nail suspension

Warts

- Fluorouracil 5%/Salicylic Acid 30%/Tretinoin 0.1% topical gel
- Cantharidin 0.7% topical soln. - applied by provider
- Salicylic acid 30%/Podophyllum 2%/Cantharidin 1% topical – provider
- Fluorouracil 5%/Salicylic Acid 15%/Cimetidine 10%/DDG 0.2%/Ibuprofen 2% Topical Gel
Pain

- Potential benefits of transdermal compounded medication
  - Customizable dosages, formulations, and drug combinations
  - Ability to combine multiple drugs with various mechanisms of action
  - Application directly at the site of pain
  - Potential for less systemic absorption and minimization of side effects
  - More convenience and better adherence to treatment regimen
  - Easy adjustment or titration to meet patient needs
  - Minimization of abuse and addiction risk

Pain

- Ketamine 5%/Ketoprofen 10%/Gabapentin 5%/Lidocaine 5% topical
- Amitriptyline
- Baclofen
- Cyclobenzaprine
- Clonidine
- Imipramine
- Diclofenac

Ideas for Inflammatory Pain

- Ketoprofen 10-20%
- Diclofenac 5% (higher concentration)

Ideas for Musculoskeletal Pain

- Ketoconazole 10%/Cyclobenzaprine 2% Topical Cream

Ideas for Neuropathic Pain

- Diclofenac 5%/Gabapentin 5%/Amitriptyline 2% Topical
- Ketamine 5%/Gabapentin 10%/Clonidine 0.2%/Baclofen 2% topical
Anti-aging

- Estriol 0.2% face cream
- DMAE in Na Hyaluronate BioPeptide cream (Dimethylaminiethanol)
- Tretinoin 0.05% in Na Hyaluronate Cream
- Biopeptide cream
  - Contains palmitoyl tripeptide-3 and palmitoyl pentapeptide-3 which help build collagen and decrease fine lines and wrinkles

Topical Numbing Formulations

- Lidocaine 23%/Tetracaine 7% special base
- Benzocaine 10%/Lidocaine 5%/Tetracaine 2% Topical Cream

Post procedure

- Topical anhydrous silicon base
  - Provides long-lasting moisturization, protecting the skin’s barrier and reduces water loss
  - Promotes a healing, soothing and nurturing environment
  - Rich in skin-friendly fatty acids and lipids
  - Contains Pracaxi oil
    - Anti-inflammatory, antioxidant, antibacterial and antifungal properties
- Niacinamide 5%
- Ascorbic Acid 2.5%
Melasma (Bleaching Cream)

- Suggested Combinations
  - Hydroquinone 4-8%
  - Tretinoin Acid 0.025-1%
  - Hydrocortisone 1%
  - Fluocinolone .01%/Hydroquinone 4%/Tretinoin .05% Topical
  - Use a base that protects against oxidation of chemicals
- Other common agents
  - Ascorbic Acid
  - Azelaic Acid
  - Kojic Acid

Hirsutism

- Metformin 5%/Progesterone 1%/Azelaic Acid 1%/Spironolactone 5% topical

Hyperhidrosis

- Aluminum Chloride 40% soln
Actinic Keratosis

- Calcipotriene 0.0025%/5-FU 3% topical Cream

Anal Fissures

- Nifedipine 0.2% / Lidocaine 2% Topical cream
- Diltiazem HCl 2% Topical Cream

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