The Epiduo Sample Study was recently finished with good results! Subjects were randomized into sample or no sample group. Sample group received a demonstration on how to apply the medication using a product sample. The primary outcome was mean adherence, recorded using electronic monitoring, and secondary outcomes were efficacy measures including the Acne Global Assessment (AGA) and lesion counts and the Perceived Medical Condition Self-Management Scale (PMCSMS). Data from 17 patients were collected and analyzed. Median adherence rates were 50% in the sample group and 35% in the no sample group (p=0.67). The median percent improvement in non-inflammatory lesions were 46% for the sample group and 33% for the no-sample group (p=0.10). Objective electronic monitoring expanded our previous observations of poor adherence of teenage patients with acne to a broader cohort including older patients. There is a considerable potential effect size on adherence for the use of samples, supporting the need for future, well powered studies to assess the value of using samples in the treatment of acne, and possibly other skin diseases.
SIDE EFFECTS OF COMMON ACNE TREATMENTS

A variety of acne treatments exist, including topical benzoyl peroxide, topical retinoids, topical antibiotics, oral antibiotics, hormonal therapy, isotretinoin, and procedural therapies, such as light and laser therapies. Although each of these treatment modalities confer various benefits for the management of acne, it is important for healthcare providers to be aware of their potential side effects, including ones that are most common and most serious, so that these medications can be prescribed in a safe manner. A systematic literature review was performed to identify publications discussing the side effects of the different treatment modalities used for acne vulgaris. Acne treatments reviewed included benzoyl peroxide gel, topical retinoids, topical antibiotics, oral antibiotics, hormonal therapy, isotretinoin, and light/laser treatments. A comprehensive overview of acne treatments’ side effects is imperative for healthcare professionals and scientists working with and prescribing acne treatments. Side effects to be aware of when prescribing range from local irritation with topical treatments to systemic side effects including liver function abnormalities and teratogenic side effects. The best available options are those that address acne severity while minimizing side effects for the patient. Consequently, personalized medicine must be strongly emphasized to healthcare providers developing patients' treatment plans.

QUALITY OF LIFE MEASURES FOR ACNE PATIENTS

Acne vulgaris affects most adolescents and two-thirds of adults and is associated with substantial psychosocial burden. Health-related quality of life (HRQOL) for patients with acne is an important factor of patient care, and several dermatologic and acne-specific measures have been created to assist in acne research, management, and care. We did a review describing several skin disease and acne-specific HRQOL measures and their applications in clinical care or research. The ideal HRQOL measure for the management of patients with acne is a concise questionnaire that places minimal burden on respondents and allows physicians to track improvement in HRQOL with successful treatment.
TRENDS IN PEDIATRIC PSORIASIS OUTPATIENT HEALTH CARE DELIVERY IN THE UNITED STATES

We did a study to characterize patterns of childhood psoriasis health care delivery from 1979-2007. This was a retrospective, cross-sectional investigation using National Ambulatory Medical Care Survey data to assess demographics, physician specialty, and medications prescribed. There were an estimated 3.8 million visits for psoriasis over the study interval with a median of 123,420 visits per year. Dermatologists saw 63% of patients, pediatricians saw 17%, and internists, 14%. The numbers of visits were equal between sexes but ranged by age group: patients ages 13 to 18 years accounted for 47% of visits, those ages 8 to 12 years for 35%, and those ages 0 to 7 for 18%. Ninety-three percent of patients were white. Topical corticosteroids were the most commonly prescribed medications. Children 0 to 9 years old received equally potent corticosteroids as children 10 to 18 years old. Among all patients, the most prescribed medication was topical betamethasone; among those ages 0 to 9 years, tacrolimus; and among those ages 10 to 18 years, betamethasone. By physician specialty, the most prescribed medications were high-potency steroids for dermatologists and internists, and topical tacrolimus for pediatricians. Topical calcineurin inhibitors were not among the top 20 most prescribed medications by dermatologists, and systemic antipsoriatic agents were not among the top 20 most prescribed medications in any age group. Over the 28-year interval, outpatient visits for pediatric psoriasis were attended primarily by white children older than 8 years in equal number by sex. Dermatologists and pediatricians saw the majority, and treatment approach differed by physician specialty and patient age. Treatment guidelines for childhood psoriasis may help reduce treatment variability.
Digital Videography Assessment of Patients' Experiences Using Adapalene-Benzoyl Peroxide Gel in the Treatment of Acne Vulgaris

Acne profoundly affects patients' lives, but the effect of treatment is not fully characterized. Our study was to explore patients' experiences and viewpoints regarding treatment for mild to moderate acne vulgaris. An open-label, single-center study of 30 patients with mild to moderate acne vulgaris, treated with adapalene 0.1%/benzoyl peroxide 2.5% (adapalene-BPO gel) once daily for 12 weeks, was performed. An acne-specific quality of life questionnaire (Acne-QoL©) was conducted. Each subject's global assessment (SGA) was recorded at baseline and weeks 4, 8, and 12. Photographs were taken and video interviews were recorded. Local tolerability assessments and incidence of adverse events were documented. A statistically significant number of patients were clear/almost clear (treatment success) at week 12 (P<.001). At week 12, patients experienced a 44.1% and 57.1% mean reduction in inflammatory and noninflammatory lesions, respectively. By week 12, 67% of the patients in the video population (n=27) believed they had achieved treatment success (P<.001). Patients reported higher Acne-QoL© scores at week 12 compared to baseline, indicating better quality of life after treatment with adapalene-BPO gel (P<.001 for all domains). No unexpected adverse or serious adverse events were reported. A limitation was that this was an open-label study of 12 weeks duration. Overall, patients with mild to moderate acne treated with adapalene-BPO gel showed significant improvement in disease severity and quality of life. The video recordings chronicled the patients' experiences throughout the treatment process.

In a separate qualitative analysis, we sought to learn more about patients' impressions of quality of life and personal experiences in acne treatment. Video interviews of 27 teenagers and young adults with acne enrolled in a clinical trial of adapalene/benzoyl peroxide gel were transcribed. Transcripts were then coded using Weft QDA software and qualitatively analyzed. Four thematic domains were found in all participants that affected quality of life and experience: physical symptoms of disease, self-perception, social placement and perception of control. Successful treatment resulted in increased self-esteem, better performance at work and school, more confidence, and a more outgoing personality. Increased perception of control was associated with increased quality of life and overall satisfaction with treatment. Limitations were that this study only followed patients for 12 weeks and focused on treatment using combination adapalene/benzoyl peroxide gel. Three patients were lost to follow-up. Successful acne treatment increases patients' quality of life by improving physical appearance and self-perception, satisfaction with social placement and perception of control. Psychosocial support in acne treatment can include an emphasis on patients acquiring an internal locus of control, which may improve patient satisfaction.


CHANGING AGE OF ACNE VULGARIS VISITS: ANOTHER SIGN OF EARLIER PUBERTY?

The objective of the current study was to assess changes in the onset of pubertal maturation by determining whether acne is occurring at an earlier age. We assessed the age at which acne is occurring by assessing trends in the age of people seeking medical attention for acne. The National Ambulatory Medical Care Survey database was used to analyze physician visits for acne vulgaris in children aged 6 to 18 from 1979 to 2007. The data were used to assess trends in the mean age of children with acne and to compare these trends according to race and sex. Regression analysis revealed a significant decrease in the mean age of children seeking treatment for acne over this 28-year period (p < 0.001). There was no significant change in the mean age of black children seeking treatment for acne. Black girls had the lowest mean age whereas white boys had the highest mean age. There has been a decrease in the average age of children seeking treatment for acne that may be indicative of earlier acne onset. This finding provides supporting evidence of the increasingly earlier onset of puberty in girls.

ISOTRETINOIN AND ORAL CONTRACEPTIVE USE IN FEMALE ACNE PATIENTS VARIES BY PHYSICIAN SPECIALTY

We did a study to determine whether oral contraceptives (OCPs) are underutilized in the treatment of acne in women of reproductive age, how use of OCPs compares with use of isotretinoin and whether adequate use and documentation of OCPs is occurring with isotretinoin. The National Ambulatory Medical Care Survey (NAMCS) was analyzed over the years 1993-2008 for isotretinoin and OCP use in females aged 12-55 with acne. Isotretinoin was prescribed more often than OCPs at both first visits (4.7% vs. 3.3%) and overall visits (13% vs. 2.6%) for acne. Documentation of OCP or other contraceptive use occurred only 4.1% of the time overall in patients treated with isotretinoin. Specialties varied in both OCP use for acne and contraceptive use with isotretinoin, with ob/gyn specialists most likely to prescribe OCPs and isotretinoin and to report contraceptive use in patients using isotretinoin, and dermatologists least likely to prescribe OCPs. The findings of the current study indicate that OCPs may be underutilized in women with acne. Underreporting of contraceptive use with isotretinoin and variations between specialties in OCP and isotretinoin use indicate a potential for education about the viability of OCPs in acne treatment and the importance of reporting contraceptive use with isotretinoin.
TOP DERMATOLOGIC CONDITIONS IN PATIENTS OF COLOR: AN ANALYSIS OF NATIONALLY REPRESENTATIVE DATA

Some dermatologic disorders are known to be much more common in patients of color, but the leading dermatologic disorders in patients of color have not yet been described on the basis of nationally representative data. We did a study to determine the leading dermatologic disorders for each major racial and ethnic group in the United States. We queried the National Ambulatory Medical Care Survey (NAMCS) for the leading diagnoses in patient visits to U.S. dermatologists from 1993 to 2009. The leading diagnoses were tabulated for each racial and ethnic group, and the top conditions were compared between groups. In a separate analysis, visits for skin conditions regardless of physician specialty were analyzed for leading diagnoses in each racial and ethnic group. The top five diagnoses for African-American patients in dermatology clinics were acne, unspecified dermatitis or eczema, seborrheic dermatitis, atopic dermatitis, and dyschromia. For Asian or Pacific Islander patients, the top five were acne, unspecified dermatitis or eczema, benign neoplasm of skin, psoriasis, and seborrheic keratosis. By contrast, in Caucasian patients, the top five were actinic keratosis, acne, benign neoplasm of skin, unspecified dermatitis or eczema, and nonmelanoma skin cancer. In Hispanic patients of any race, the leading diagnoses were acne, unspecified dermatitis or eczema, psoriasis, benign neoplasm of skin, and viral warts. When the leading dermatologic diagnoses across all physician specialties were assessed, the top diagnoses for African-Americans were unspecified dermatitis or eczema, acne, dermatophytosis of scalp and beard, sebaceous cyst, and cellulitis or abscess; for Asians or Pacific Islanders were unspecified dermatitis or eczema, acne, atopic dermatitis, urticaria, and psoriasis; and for Caucasians were acne, unspecified dermatitis or eczema, actinic keratosis, viral warts, and sebaceous cyst. For Hispanics of any race, they were unspecified dermatitis or eczema, acne, sebaceous cyst, viral warts, and cellulitis or abscess. For a sole diagnosis of a dermatologic condition, only 28.5% of African-Americans' visits and 23.9% of Hispanics' visits were to dermatologists, as compared to 36.7% for Asians and Pacific Islanders and 43.2% for Caucasians. A limitation was that the data are based on numbers of ambulatory care visits rather than numbers of patients. Data on race or ethnicity were not collected for some patients. Several dermatologic disorders are much more commonly seen in patients of color. Acne and unspecified dermatitis or eczema are in the top five for all major U.S. racial and ethnic groups. There may be an opportunity to improve the care of patients of color by ensuring they have equal access to dermatologists.
COMBINED ORAL CONTRACEPTIVES FOR THE TREATMENT OF ACNE: A PRACTICAL GUIDE.

Many therapies exist in the arsenal of drugs available to dermatologists for the treatment of acne vulgaris. Among them, hormonal therapy stands out as a unique and highly efficacious treatment modality. Although some dermatologists may be hesitant to prescribe hormonal therapies, they can be safely and appropriately used in eligible female patients to treat acne vulgaris. We did a review in which current issues regarding the hormonal treatment of acne in the form of combined oral contraceptives (COCs) are presented, and a practical method for implementing this therapy is proposed. Specifically, drug selection, associated risks, benefits, monitoring, and counseling are discussed, with emphasis on the practicality of use in the clinical setting.

WHAT’S NEW IN ANTIBIOTICS IN THE MANAGEMENT OF ACNE?

Acne vulgaris is a chronic inflammatory disease of the pilosebaceous unit with a multifactorial pathogenesis. Topical and oral antibiotics are a mainstay treatment for inflammatory acne lesions and are widely utilized for all levels of disease severity. Over the past forty years, a gradual increase in antibacterial-resistant strains of Propionibacterium acnes has changed the way practitioners use antibiotics to manage acne. Updated recommendations call for avoiding antibiotic monotherapy and prescribing it in combination with benzoyl peroxide or retinoids. In addition to reducing the risk of developing bacterial resistance, antibiotics prescribed in combination formulations with benzoyl peroxide or retinoids are more efficacious than monotherapy, provide fast therapeutic results, and are associated with greater patient adherence due to the simplification of treatment regimens. Newer management strategies include limiting antibiotic use to the initial 3-6 months of treatment and then switching to topical retinoids for maintenance therapy.
Acne Adherence in MarketScan

Acne vulgaris is a common chronic disease that may require long term treatment. Medication adherence is critical to acne management; non-adherence is a common reason for treatment failure and can lead to poor quality of life. We did a study to examine medication adherence, healthcare costs, and utilization associated with acne drugs among acne patients in the United States. We did a retrospective cohort study from January 2004 to December 2007 using the Marketscan Medicaid Database, a national healthcare claims database. The study followed acne patients aged 0-64 years for 90 days after acne related drugs were first prescribed to measure acne medication adherence, acne-related outpatient visits, and total acne-related healthcare costs. Adherence was measured among different acne drug classes using Medication Possession Ratio (MPR). Multivariate regression analyses were conducted to assess the outcomes. The study included 24,438 eligible patients, of which 89.39% were under 18 years old. The average adherence rate to acne drugs (MPR) was 0.34, and only 11.74% of the patients were adherent (MPR≥0.80). Patients with drug refills had a higher adherence rate (MPR=0.74) than those without refills (MPR=0.27). Factors significantly associated with adherence were age, comorbidity, gender, number of drug refills, and number of drug class used. Patients were more adherent to oral retinoids than any other acne drug class (MPR=0.78, 57% adherent). Patients were less adherent to oral antibiotics (MPR=0.21) and topical retinoids (MPR=0.31). After controlling for medication use behavior, the use of oral antibiotics decreased the number of acne-related outpatient visits by 50.9% (p<0.001) and lowered acne-related total costs by 51.7% (p<0.001). Medication non-adherence is generally prevalent among young acne patients enrolled in Medicaid. The combination of a topical retinoid and an antibiotic agent may be a good choice given their associated healthcare outcomes and costs. However, adherence to these agents is not satisfactory. Therefore, developing specific strategies to improve adherence to these drugs among teenage acne patients is warranted.
Psoriasis is among the top dermatologic diagnoses for older adult patients, and the number of older adult psoriasis patients is expected to rise. We did a study to characterize trends in older adult psoriasis health care practices of US ambulatory physician offices from 1993 to 2009. We used data from the National Ambulatory Medical Care Survey to assess demographics, specialties seen, and treatment in visits by older adult patients, 55 years of age and older. There were approximately 14.1 million outpatient visits for psoriasis among the older adult population during the study period. Older adult psoriasis patients were 52.4% female and 47.6% male. The most frequent older adult age group seen for psoriasis was the 55 to 64 year age group. Dermatologists saw 69.3% of patients, internists saw 14.5%, and general and family practitioners saw 11.6%. Topical corticosteroids were the most frequently prescribed medications. Dermatologists preferred clobetasol whereas non-dermatologists more commonly prescribed betamethasone. For both the 18 to 54 year age group and the 55 and older group, the leading 7 out of 10 medications prescribed were topical corticosteroids and calcipotriene. However, etanercept, coal tar, and fluocinolone were among the leading medications in the younger group but not in the 55 and older group. Treatment approach for older adult psoriasis patients showed some differences among medical specialties and among the younger and older age groups. Further research specific to older adult psoriasis patients is needed to determine optimal treatment strategies for this patient population.
**Combination Therapy in Psoriasis: An Evidence-Based Review**

Combinations of psoriasis therapies are used often in clinical practice to enhance efficacy and reduce drug toxicities. We did a review to assess the literature on the efficacy and safety of combination therapy in the treatment of psoriasis. MEDLINE was reviewed to identify English-language publications from 1966 to 2011 examining combination therapy in psoriasis. Fifty-three articles met inclusion criteria and were included. Randomized controlled trials addressing various combinations of treatment modalities for psoriasis were included. Data from these clinical studies were summarized and the outcomes were discussed. Large-scale, randomized controlled trials investigating the use of various combination therapies in psoriasis are limited. The strongest data support the use of combinations of vitamin D derivatives and corticosteroids as topical combinations and, to a lesser extent, the combination of other topical agents. Phototherapy and topical vitamin D derivatives as well as phototherapy in combination with oral retinoids are well supported in the literature. Combinations of systemic medications, though often used clinically, have little data to support their efficacy or safety. Our data were limited by the small number of clinical trials examining the multiple available combinations that are used in clinical practice. The use of combination treatments falls within the standard of care for psoriasis, even if these combinations have not been extensively studied in clinical trials.

**Risk of Cardiovascular Disorders in Psoriasis Patients: Current and Future**

Recently, psoriasis and its consequential lifestyle and dietary habits have been associated with increased risks for cardiovascular diseases. We wrote an article discussing the connection between cardiovascular disorders and psoriasis and the effects of available treatment options on cardiovascular risk. A PubMed search revealed 11 articles that were analyzed for information regarding this association, its effects, and potential courses of treatment. Both the presence and severity of psoriasis increases the risk for cardiovascular disorders and co-morbidities. Forty percent of psoriasis patients met metabolic syndrome criteria as compared with 23% of non-psoriasis control subjects. Rate ratios for atrial fibrillation are correlated with the severity of psoriasis; patients with severe and mild psoriasis produced rate ratios of 1.63 and 1.31, respectively. Studies also show an increase in the risks for myocardial infarction, atherosclerosis, ischemic stroke, and other cardiovascular disorders. The exact mechanisms behind this affiliation are still uncertain; however, the psychological and physiological effects of psoriasis and the overlapping pathogenesis behind atherosclerosis and psoriasis may play a role. Since the risk for cardiovascular disorders increases with the presence and severity of psoriasis, psoriasis treatment should not only address the disease and its symptoms, but also its co-morbidities. Recent National Psoriasis Foundation (NPF) guidelines have provided recommendations for psoriasis patient care. Histories of co-morbidities, screenings for potential diseases, increased exercise, decreased alcohol consumption, and smoking cessation should be implemented. Unfortunately, while there are data for the increased risk for cardiovascular diseases within psoriasis patients, there are presently no data stating that increasing cardiovascular screening rates in patients produces a significant difference.
**Psoriasis and Phototherapy**

UVB phototherapy is an effective treatment modality for psoriasis. For patients with localized plaque-type lesions, 308-nm excimer laser phototherapy offers rapidly delivered, targeted, high UVB doses, while sparing adjacent healthy skin. We aimed to compare the advantages and disadvantages of the 308-nm xenon chloride (XeCl) UVB excimer laser with nontargeted broadband UVB (BB-UVB), narrowband UVB (NB-UVB), and psoralen plus UVA (PUVA) phototherapies. A PubMed search for studies evaluating the efficacy and safety of the laser versus nontargeted phototherapeutic modalities was conducted.

Three prospective nonrandomized studies compared NB-UVB with excimer laser phototherapy. No head-to-head studies were found for BB-UVB or PUVA compared to excimer laser. Both the 308-nm excimer laser and nontargeted phototherapies were found to effectively clear localized psoriasis. Although it is proposed that excimer laser exclusively treats diseased skin with better response rates, split-body trials revealed no differences. Long-term studies are necessary to compare the effects of high-dose excimer laser regimens with nontargeted phototherapies.

Targeted UVB phototherapy devices provide a practical means to treat localized psoriasis while sparing harmful effects to unaffected skin. We did a study to characterize the efficacy and safety of targeted phototherapy devices for psoriasis. We conducted a PubMed search for broadband UVB, narrowband UVB, and localized phototherapy, and a Google search for handheld phototherapy. The most common targeted phototherapy devices were characterized as 308-nm excimer laser, 308-nm excimer nonlaser, or nonexcimer light subtypes. Nine clinical trials met inclusion criteria and all found targeted phototherapy efficacious. In a nonexcimer light study, high doses cleared the most plaques. The 308-nm excimer laser had long-term clearance in 13 of 26 patients. The mean number of UVB treatments in all 9 studies and highest cumulative dose was less than those same parameters in nontargeted phototherapies. Common adverse effects included erythema, blisters, hyperpigmentation, erosion, mild burning, and itching. The predominant setting for excimer units is the office; however, the majority of nonexcimer light devices can also be used at home. Targeted phototherapy should be considered among the treatment options for localized variants of psoriasis.

308 nm excimer laser phototherapy is efficacious in the treatment of localized psoriasis. Different approaches regarding dose fluency, number of treatments, and maintenance have been utilized, and there is yet to be a consensus on standard protocol. We did a study to characterize treatment parameters for 308 nm excimer laser phototherapy. We performed a PubMed search for studies describing excimer laser treatment protocol with particular attention to dosage determination, dose adjustment, dose fluency, number of treatments, and maintenance. Seven prospective studies were found describing the excimer efficacy for psoriasis. All studies determined the initial treatment dose using either the minimal erythema dose (MED) or induration. Fluency ranged from 0.5 MED (low) to 16 MED (high); one study demonstrated that medium to high fluencies yielded better improvement in fewer number of treatments. Fluency adjustments during the course of treatment were important to minimize phototherapy-associated side effects. The use of higher fluencies was reported to result in higher occurrences of blistering. One study implemented a maintenance tapering of dose-frequency phase to better manage psoriasis flare-ups. The 308 nm excimer laser is an effective therapy for psoriasis regardless of the method used to determine initial dosage, dose fluency, or number of treatments. As its usage as a targeted monotherapy increases, future trials should consider evaluating and modifying these parameters to determine the most optimal management of localized psoriasis. Based on our reviewed studies, there is no consensus for a single excimer laser therapy protocol and as a result, patient preferences should continue to be an important consideration for phototherapy regimen planning.
**Patients' Educational Needs About Topical Treatments for Psoriasis**

Topical medications are a mainstay of psoriasis treatment. Many patients lack education about topicals. This may contribute to low adherence with long-term disease management. We sought to describe educational needs concerning topical treatment for patients with psoriasis. Patients' questions regarding topical therapy were collected from a National Psoriasis Foundation webcast on topical medications. The prebroadcast question responses and the postwebcast survey responses were categorized into common themes and ranked by frequency. Thirty percent asked about side effects, with a major emphasis on topical steroids; 16% asked about proper use; and 11% asked about efficacy. Popular new and useful education concerned specific medication facts and information on medication (especially steroid) safety, the need for treatment adherence, and the variety of options available in topical form. The study population consisted of online users expressing interest in the National Psoriasis Foundation educational material, not the general population of patients with psoriasis. Patient needs can be better met by providing information regarding side effects, proper use, and efficacy of topical medications. Communication regarding treatment changes and adherence to the treatment regimen should also occur.

**Adherence to Adalimumab for Moderate to Severe Psoriasis**

The chronic and relapsing course of psoriasis lends itself to poor adherence to treatment. Adherence to topical treatment is abysmal. While the overall trend in adherence to all psoriasis treatments is poor, the fine details of adherence behavior in individual patients on self-administered biologic treatment of psoriasis are not well characterized. We assessed adherence to adalimumab in patients with moderate to severe psoriasis to better understand this adherence behavior and to serve as a pilot study for a nurse education adherence intervention. Adherence to treatment was recorded with electronic monitoring via MEMS caps mounted on hazardous waste needle disposal containers. Median adherence over 12 months was 79%. Four patients had adherence greater than 90%, while the other three had adherence between 45-62%. Adherence to biologics is variable and can be poor. Risk factors for poor adherence in this population include depression, poorly controlled comorbidities, and blaming the medication for side effects.
Sleep Disturbances in Psoriasis

Psoriasis negatively impacts sleep, but the factors that cause this sleep disturbance are not well characterized. We did a study to assess sleep quality in subjects with psoriasis. 35 outpatients diagnosed with chronic plaque psoriasis affecting at least 10 percent BSA and 44 controls completed the Pittsburgh Sleep Quality Index, Patient Health Questionnaire, Itch Severity Scale, Insomnia Severity Index, and Epworth Sleepiness Scale. For multiple testing, alpha was set at 0.008. Adjusting for age, BMI, and gender, patients with psoriasis had 4.3 times the odds to score in a higher insomnia category (OR 95% CI: 1.7, 11.2; p=0.01), a trend toward experiencing "poor sleep" (p=0.04), and no difference in odds to be "sleepy" (p=0.83). Patients with psoriasis had greater itch than those without psoriasis (mean ISS 8.5 vs. 2.0; p<0.0001). When adjusting for age, BMI, gender, and depression, those with psoriasis were not more likely to experience poor sleep quality (p=0.25), nor to score in a higher insomnia category (p=0.20) or be more "sleepy" (p=0.53). Patients with psoriasis suffer from sleep disturbances and pruritus more than those without psoriasis. Although sleep disturbances are more prevalent, this may be secondary to depression rather than related to a direct effect of psoriasis.

Can Light-Field Photography Ease Focusing on the Scalp and Oral Cavity?

Capturing a well-focused image using an autofocus camera can be difficult in oral cavity and on a hairy scalp. Light-field digital cameras capture data regarding the color, intensity, and direction of rays of light. Having information regarding direction of rays of light, computer software can be used to focus on different subjects in the field after the image data have been captured. A light-field camera was used to capture the images of the scalp and oral cavity. The related computer software was used to focus on scalp or different parts of oral cavity. The final pictures were compared with pictures taken with conventional, compact, digital cameras. The camera worked well for oral cavity. It also captured the pictures of scalp easily; however, we had to repeat clicking between the hairs on different points to choose the scalp for focusing. A major drawback of the system was the resolution of the resulting pictures that was lower than conventional digital cameras. Light-field digital cameras are fast and easy to use. They can capture more information on the full depth of field compared with conventional cameras. However, the resolution of the pictures is relatively low.
**Pharmacy Adherence Study**

We have begun our study to assess the effect of Internet surveys on adherence in patients with hypertension, high cholesterol, diabetes, and depression. 1112 patients will be enrolled from four Wake Forest Baptist pharmacies, and will be randomized to receive weekly surveys for 12 months, weekly surveys for 8 weeks followed by monthly surveys, weekly surveys for 8 weeks followed by no more surveys, or standard-of-care with no surveys. This study is expected to demonstrate the potential for the patented Internet survey method to improve adherence in a wide range of chronic conditions.

In a related study, we plan to assess the willingness of patients to participate in online surveys by surveying patients in our clinic. We will survey all patients coming in on certain days to determine whether they would be willing to participate and the effect of factors such as financial incentives, reporting of results back to the patient, and who sees the data.

Another new study is a quality improvement assessment of telephone call-backs following the introduction of the EPIC EMR system at Wake Forest in September 2012. In particular, we plan to review cases in which acne patients called back to see what were the major reasons for complaint and what can be done to reduce call-backs to improve service. The frequency that acne patients complained about tolerability of specific medications will be a special focus.
**ACTIGRAPHY AND ATOPIC DERMATITIS ADHERENCE**

Analyzing the relationship between adherence to treatment and outcomes in atopic dermatitis is limited by methods to assess continual disease severity. Atopic dermatitis significantly impacts sleep quality and monitoring sleep through actigraphy may adequately capture disease burden. We did a study to assess if actigraphy monitors provide continuous measures of atopic dermatitis disease severity and to preliminarily evaluate the impact of a short-course, high-potency topical corticosteroid regimen on sleep quality in these patients. 10 patients with mild to moderate atopic dermatitis were instructed to apply topical fluocinonide 0.1% cream twice daily for 5 days. Sleep data were captured over the 14-day study using wrist actigraphy monitors. Investigator Global Assessment (IGA) and secondary measures of disease severity were recorded at baseline and the end of weeks 1 and 2. Changes in quantity of in-bed time sleep were estimated with random-effects models. IGA scores were reduced by a median change of 1 point at days 7 (p= 0.02) and 14 (p= 0.008). The mean daily in-bed time, total sleep time, and wake-after-sleep-onset (WASO) were 543.7 min (SEM 9.4), 466.0 min (SEM 7.7), and 75.0 min (SEM 3.4), respectively. WASO, a marker of disrupted sleep, correlated with baseline (ρ=0.75) and end of treatment IGA (ρ=0.70). Most patients did not have marked changes in sleep activity. A limitation was that only one night of pre-treatment sleep activity was recorded for each subject. Using actigraphy, atopic dermatitis disease severity was positively correlated with sleep disturbances. Actigraphy monitors were well-tolerated by this cohort of subjects with atopic dermatitis.

In the same study, we also measured adherence to treatment with electronic monitoring. The median adherence rate was 40% (range of 0-100). The median percent change in VAS from baseline measures on days 7 and 14 were 90% (range -13, 100, p=0.02) and 52% (range 0, 100, p=0.004). On days 7 and 14, 20% and 70% patients achieved an EASI-75 and 40% and 60% an IGA of 0 or 1. A limitation was that small sample size limited subgroup analyses. Adherence rates with short-term treatment were similar to previously reported rates in longer term treatment studies. However, even non-adherent patients had significant improvement in itch and disease severity.
**MARKETSCAN IBD/ACNE**

Oral antibiotics and isotretinoin are routinely prescribed for the treatment of moderate to severe acne. Although cases of inflammatory bowel disease (IBD) have been reported in patients who were prescribed these medications, there is conflicting evidence to support a causal association. We did a study to evaluate the association of oral antibiotic and isotretinoin use for acne vulgaris management and the development of IBD. A longitudinal study was conducted using the 2003-2007 MarketScan® Medicaid Claims dataset representing 176,889 eligible patients with acne vulgaris. Cox proportional-hazard survival analyses were performed to obtain the hazard ratios (HRs) of IBD development per isotretinoin and oral antibiotic use, adjusting for potential confounders. 492 patients were diagnosed with IBD. Compared to never-use, using 0.1-3.4 or 3.5+ cumulative grams of isotretinoin was not associated with the development of IBD (HR 1.20, p=0.60; HR 0.15, p=0.06). Oral antibiotic use was associated with a decreased risk of IBD development (HR 0.50, p<0.001). A limitation was that the use of an administrative claims database could allow for outcome misclassification as cases are identified by diagnosis codes rather than clinical records. Our results indicate that IBD does not occur more frequently in acne patients treated with oral antibiotics or isotretinoin.

**DYSCHROMIA**

Dyschromias are becoming a more common concern among patients, particularly among persons of color. Evaluating common agents prescribed among various races may prompt efforts to enhance care for dyschromias in patients of color. We did a study to determine whether racial or ethnic groups are treated differently for dyschromia and to discover the main treatments used and trends over time in demographics. We searched the 1993-2010 National Ambulatory Medical Care Survey (NAMCS) for visits associated with a diagnosis of dyschromia (ICD-9 codes 709.00 or 709.09). The demographics and leading treatments were tabulated, and trends over time were assessed by linear regression. There were about 24.7 million visits for dyschromia over the 18-year period. Among 5,531,000 patients with the sole diagnosis of dyschromia, there were 2,800 visits from females and 1,200 visits from males per 100,000 population. Females were more likely to receive prescription combination therapy for dyschromia than males by a ratio of 10 to 1. Leading treatments overall prescribed by dermatologists included hydroquinone, topical corticosteroids, and retinoids. Asians were 27% more likely to receive a combination therapy than non-Asians. African Americans and Hispanics were less likely to have a procedure performed for dyschromia. Dyschromia is a significant concern for many patients, especially among patients of color. Combination agents may be underutilized in African Americans and Hispanics for dyschromia.
**ROSACEA IN SKIN OF COLOR**

The prevalence of rosacea in skin of color has not been measured, and may be underestimated. Physicians may not recognize and diagnose rosacea correctly in skin of color. We did a study to assess the prevalence of rosacea in skin of color, and determine if patients of color with rosacea symptoms are receiving a diagnosis of rosacea. We analyzed the National Ambulatory Medical Care Survey (NAMCS) for 1993-2010 for racial and ethnic distribution of patients with rosacea. Common reasons for visit in rosacea patients were tabulated, and frequency of rosacea diagnosis was compared in patients of each race with the relevant reasons for visit. There were 980 visits for rosacea per 100,000 whites in 2000 as compared to 130/100,000 for blacks, 430/100,000 for Asians or Pacific Islanders, and 370/100,000 for Hispanics or Latinos. Leading reasons for visit associated with rosacea included “other diseases of the skin”, skin rash, and discoloration or abnormal pigmentation. Rosacea was the primary diagnosis for 8.3% of whites and 2.2% of blacks complaining of “other diseases of the skin”, for 2.0% of whites and 0.6% of blacks complaining of skin rash, and for 3.0% of whites and 0.0% of blacks complaining of discoloration or abnormal pigmentation. The percentage of rosacea patients who were black or Asian/Pacific Islander did not change significantly over time. A limitation was that no specific reason-for-visit code indicating rosacea exists in the NAMCS. Prevalence may be underestimated if some patients do not visit a physician for treatment. Rosacea has not become more commonly diagnosed in skin of color in recent years. Fewer rosacea visits do not necessarily denote that rosacea is less common in skin of color. Patients of color may not be bothered by subtle changes in their skin leading to less physician visits or they may rarely receive a diagnosis of rosacea, even when they have symptoms suggesting it.
**COLD SORES**

Cold sores are a common condition that can cause significant morbidity and mortality. Antivirals are the typical treatments for cold sores, but the emergence of new antiviral therapies within the past twenty years and the ways in which these medications are used to treat cold sores have changed. We did a study to determine the main treatments prescribed for cold sores and trends in their management over time. A retrospective analysis of the National Ambulatory Medical Care Survey database was used to analyze outpatient visits for cold sores from 1993 to 2009. A patient was included in the data analysis if they had one of the following three diagnoses reported for their reason-for-visit codes: cold sores (CS), herpes simplex (HS) or herpes simplex with cold sores (CS/HS). There was a decreasing trend in the number of annual patient visits for cold sores. The majority of patients were mainly young to middle adulthood, white women. The top two most commonly prescribed medications were acyclovir followed by valacyclovir. Valacyclovir use increased in all three populations, while acyclovir use has decreased. Limitations were that the NAMCS does not collect data regarding the clinical characteristics of patients diagnosed with cold sores, sites of involvement, or the severity of the disease. The increasing trend in the use of valacyclovir verses the decreasing trend in the use of acyclovir may indicate that physicians are evolving their treatment strategies to implement newer antiviral medications. This may prove more efficacious for the treatment of cold sores.

**VITAMIN D DEFICIENCY**

Vitamin D deficiency is a highly researched health concern of recent years. Concurrently, many countries have implemented increased vitamin D testing. We did a study to characterize outpatient visits in the US associated with a vitamin D deficiency diagnosis using the National Ambulatory Medical Care Survey. Data from 1993-2010 was queried for visits with a vitamin D deficiency diagnosis (ICD-9 codes: 268.0-.269.0). Trends in vitamin D deficiency diagnoses over time and seasons, demographic specific diagnosis rates, and visit characteristics were reported. The number of vitamin D deficiency diagnoses rapidly increased from 2007 to 2010. The majority of diagnoses were reported in the summer and winter months. African American patients were diagnosed at a rate comparable to Caucasian patients. Females and individuals ≥ 65 years of age were diagnosed 2.5 times more often than their respective counterparts. A limitation was that the NAMCS only reported vitamin D deficiency ICD-9 codes unaccompanied by the criteria used for diagnosis. The dramatic increase in vitamin D diagnoses in non-federally funded outpatient settings concurrently occurred during the time when deficiency diagnosis criteria changed from 11 ng/ml to 20 ng/mL at the 13th Workshop Consensus for Vitamin D Nutritional Guidelines. This change is a possible explanation for the diagnosis increase in recent years. Most diagnoses being for asymptomatic vitamin D deficiency suggests testing was done for screening rather than as a diagnostic aid. Although African Americans have the highest prevalence of vitamin D deficiency in the US, they did not have the highest diagnosis rate in non-federally funded outpatient settings.
HPV VACCINATION AND GENITAL WARTS

HPV vaccination is a promising method for reducing the incidence of genital warts and cervical dysplasia. We did a study to assess frequency of outpatient visits for condyloma accuminata and cervical dysplasia in relation to the release of the human papillomavirus (HPV) vaccine. The National Ambulatory Medical Care Survey 1993-2010 was queried to identify visits with a diagnosis of condyloma accuminata or cervical dysplasia and visits in which the HPV vaccine was administered. Trends in visits linked with cervical dysplasia or condyloma accuminata diagnoses were analyzed over time. The percent of eligible patients that received the HPV vaccination was estimated. Features of vaccination-linked visits, including primary reason, type of physician, and payment method were described. Approximately 6.2-18.6% of vaccine-eligible females received the vaccination between 2006 and 2010. After the release of the HPV vaccination, among all female patients the frequency of genital warts visits did not change (p=0.28), but the frequency of visits linked with cervical dysplasia diagnoses declined by 0.07% (p=0.009), equating to 360,000 fewer visits annually. The majority of visits in which HPV vaccine was administered were preventive health visits to primary care providers and paid through private insurance. The introduction of the HPV vaccination may have contributed to lower rates of cervical dysplasia. Still, no changes were observed for the frequency of genital wart-related visits. Efforts are needed to improve compliance with current recommendations to further reduce the burden of condyloma and cervical dysplasia.
**CDR Publications for 2012**


CDR Publications for 2012 (cont.)


34 Feldman SR. Let's not presuppose that patients take their medications. J Dermatolog Treat 2012;23(5):317.


38 Feldman SR. Doctor-Patient Communication: Sometimes Less is More. The Dermatologist 2012;20((1)):3.


CDR Publications for 2012


CDR Publications for 2012 (cont.)


75 Pearce DJ, Feldman SR, Williford PM. Commentary: we know how much mohs is done, but is it appropriate? *Dermatol Surg* 2012;38(9):1435-1436.


86 Taheri A, Feldman SR. Can light-field photography ease focusing on the scalp and oral cavity? *Skin Res Technol* 2013;%
to: 10.1111/srt.12039.:10.


5. Al-Dabagh AA, Feldman SR. Patients’ control over their disorder. *Handbook of Behavioral Medicine, Volume 1*.


CDR Manuscripts Accepted 2012 (cont.)


CDR Manuscripts Submitted 2012


Abstracts/Posters

Orlando Dermatology (ODAC)  January 2012
- The influence of health insurance on prescribed psoriasis medication

MauiDerm, Maui, HI  February 2012
- Actinic Keratosis Risk Questionnaire: Developing a self-assessment tool to assess risk of having or developing actinic keratosis

Annual Meeting of the AAD, San Diego, CA  March 2012
- Investigator blinded study on the potential benefits of daily shaving with an advance shave regimen compared to shaving 2-3 times per week with a standard shave regimen in the management of the symptoms of pseudofolliculitis barbae
- Skin manifestations of outpatient adverse drug events in the United States: a national analysis
- Children’s Eczema Action Plan
- Treatment of Acne with Oral Contraceptive Pills
- Trends in the use of topical over the counter products in the management of dermatologic disease in the United States
- 308-nm Excimer Laser vs. Non-targeted Phototherapy for Localized Psoriasis: A Review
- A review of targeted ultraviolet B phototherapy for psoriasis
- A Review of Protocols for 308 nm Excimer Laser Phototherapy in Psoriasis
- Comparing the lifetime risks of TNF-alpha inhibitor use in patients with severe psoriasis to common benchmarks of risk
- Review of the effect of race/ethnicity on medication adherence
- An Internet-based survey and contest: A novel method for improving acne outcomes
- Interleukin-17, Interleukin-23, and Psoriasis: Current Prospects
- Retinoid plus antimicrobial combination treatments for acne

17th Annual International Society for Pharmacoeconomics and Outcomes Research  June 2012
- Psychometrics of the Actinic Keratosis Risk Questionnaire: A risk assessment instrument

Summer AAD, Boston, MA  August 2012
- Clinicopathologic presentation of deep mycotic infections
- Psoriasis and Cardiovascular Screening Rates in the United States
- Trends in Demographics and Treatment of Warts
- Treatment of Pre-Adolescent Acne in the United States: An Analysis of Nationally Representative Data
- Medications Used for Acne Vulgaris: Practice Trends and the Use of Topical Combination Products
- Prevalence of Sleep Disturbances in Psoriasis
- Nurse Education in Patients with Psoriasis Undergoing Treatment with Adalimumab

European Society for Patient Adherence, Compliance, and Persistence, Ghent, Belgium  October 2012
- Adherence to Adalimumab in Patients with Moderate to Severe Psoriasis

Southeastern Consortium for Dermatology (SEC), Durham, NC  October 2012
- Vitamin D Deficiency in the Outpatient Setting
- Underuse of Early Follow-Up Visits: A Missed Opportunity to Improve Patients’ Adherence

Orlando Dermatology (ODAC)  January 2013
- Before we used propranolol: Trends in infantile hemangioma demographics, evaluation, and management
- Underuse of Early Follow-Up Visits: A Missed Opportunity to Improve Patients’ Adherence
Abstracts/Posters (cont.)

Association of Psychocutaneous Medicine of North America, Miami Beach, FL  February 2013
• Psychology and Behavior of Psoriasis Patients Treated with Biologics

Annual Meeting of the AAD, Miami Beach, FL  March 2013
• Patterns of Disease and Treatment for Cold Sores
• Rosacea in Skin of Color
• Acitretin for the Treatment of Psoriasis: An Assessment of National Trends
• Using Folic Acid with Methotrexate: Current Practice and an Evidence-Based Review
• Use of Electronic Medical Records Differs by Specialty and Office Settings
• Psoriasis and Rosacea Comorbidities in the Outpatient Setting
• Effects of Acne Treatment on Inflammatory Bowel Disease
• Dyschromia in Skin of Color
• The Duration of Acne Treatment
• Patients’ Satisfaction with Their Dermatologists

International Investigative Dermatology Meeting, Edinburgh, Scotland (submitted)  May 2013
• Dermatologists’ Knowledge and Preferences Regarding Topical Steroids
• Medication adherence, healthcare costs, and utilization associated with acne drugs in the Medicaid enrollees with acne vulgaris

Summer AAD, New York, NY (submitted)  August 2013
• Trends in Mohs Surgery from 1995 to 2009: A Review of the National Ambulatory Medical Care Survey
• Underuse of Early Follow-Up Visits: A Missed Opportunity to Improve Patients’ Adherence
• A descriptive analysis of the utilization of physician extenders in dermatologic practice
• Combination Therapy for Psoriasis in the United States
• Medications Used for Psoriasis Patients During Pregnancy
• Factors associated with getting topical retinoid prescriptions in acne patients
Dermatopathology Primer

*Dermatopathology Primer* Volume 2 is to be sent to press in spring 2013. Volume 1 has already received rave reviews from residents for making dermatopathology more accessible to beginners! It has been corrected and updated.

Using the unique resource of the Graham Library photos, *Dermatopathology Primer* is an essential resource that will replace thick and heavy textbooks for introductory knowledge in dermatopathology.