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Rosacea: Understanding the Patient Journey, Offering Insightful Help

ABSTRACT: Rosacea, a common skin condition among the fair-skinned, can affect individuals of all skin types. While often characterized by signs of facial flushing and redness, inflammatory papules and pustules, telangiectasias, and facial edema, rosacea's symptom severity varies greatly among individuals. Symptoms are classified into four different subtypes according to predominant findings; symptoms may wax and wane, with exacerbations likely upon exposure to triggers. Research has not completely elucidated rosacea's pathophysiology, so understanding this inflammatory disorder and the various mediators involved with triggering flares is necessary to educate patients properly and develop appropriate treatment plans that address all symptoms. Management strategies must be tailored to individual patient symptoms, and often, employ periods of trial and error. Clinicians must also consider rosacea's psychological and psychosocial impact. Pharmacists can promote realistic expectations, suggest rosacea-friendly skin products, and advise patients to seek help if they don't see improvement within a certain timeframe. This activity discusses rosacea's incidence and etiology; its impact on quality of life; available treatments; and appropriate treatment for predominant symptoms.

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INTRODUCTION

Rosacea is a remarkably common chronic, progressive inflammatory condition estimated to affect up to 10% of the American population, or more than 16 million Americans.[1] Beyond a topical skin affliction, rosacea impairs patients' quality of life and may signal an elevated risk for certain other systemic medical comorbidities. This condition, most common in fair-skinned adults, tends to develop in midlife and often has a genetic component. Its onset is insidious, and its symptoms are so general that clinicians often confuse them with other skin problems like acne, sun damage, or actinic keratosis. This makes it very difficult

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EDUCATIONAL OBJECTIVES

After participating in this activity pharmacists will be able to:

- Discuss rosacea's pathophysiology and four subtypes
- Identify recent changes in available medications to treat rosacea
- Distinguish each FDA-approved product by the symptoms it addresses
- Maximize the pharmacist's role in identifying OTC products, referring patients for prescription strength medication, and counseling patients about both

After participating in this activity, pharmacy technicians will be able to:

- Discuss the basic facts about rosacea
- Acquire reputable sources for patients who have rosacea to find information
- Differentiate between over-the-counter and prescription drugs for rosacea
- Infer when to refer patients to the pharmacist for recommendations or referral

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to determine rosacea's exact incidence, although most experts agree that it is far more common than previously believed.[2,3] Affecting primarily the face, rosacea is not easily hidden, and creates tremendous emotional and physical discomfort for patients experiencing moderate-to-severe symptoms.

Epidemiology and Incidence

Rosacea disproportionately affects fair-skinned individuals of northwestern European descent; people in Britain and Ireland call it the "curse of the Celts." Although symptoms can develop in childhood and adolescence, symptoms generally develop between the ages of 30 and 50 years, and tend to be observed in Caucasians most often. Symptom progression varies considerably among patients and a disease course characterized by symptom remission and relapse is common. The insidious onset of rosacea symptoms often results in confusion with other skin disorders, such as acne or sun damage. Left untreated, rosacea can progress to irreversible disfigurement.[4,5] Studies suggest that the approximate incidence of rosacea is 10%, and possibly up to 20%, in the United States.[5,6] Interestingly, rosacea's prevalence varies by state. Maine, Rhode Island, New Hampshire, and Connecticut all report prevalence exceeding 10% of their adult populations, reflecting large populations with Irish or northern European heritages.[7]

Psychological Implications

Rosacea is more than "just" a skin problem, but rather a very visible condition that, historically and erroneously, was associated with alcoholism and psychiatric illnesses. Misunderstanding and misinterpretation of rosacea's signs and symptoms persist today, and necessitate healthcare providers be sensitive to this condition. Patients with rosacea often experience psychological stress, including embarrassment, social anxiety, depression, and a reduced quality of life compared with individuals who have no facial dermatologic disorders. Rosacea's psychological impact may disrupt patients' lives moderately, but can also be can be severe and debilitating. Younger people living with rosacea tend to report a greater impact on health-related quality of life compared with older individuals living with this condition.[8-11] The American Academy of Dermatology reports that rosacea's emotional toll on patients is significant. Many of these patients worry that their rosacea will worsen or cause scarring. They also worry about the adverse effects related to the drugs they use to treat it.[12] The National Rosacea Society has looked at rosacea's impact on patients' lives and found that three quarters of patients have fielded intrusive questions from others about their red faces. More than one third indicate that their rosacea has affected their professional interactions, and they have canceled or postponed business meetings due to their skin's appearance. Rosacea is also associated with absenteeism at work, and survey respondents indicate that rosacea has interfered with their ability to be promoted or to find a new job.[13]

Symptom progression varies considerably among patients and a disease course characterized by remission and relapse of symptoms is common.

Pause and Ponder:
What is the possible correlation between rosacea and conditions such as Parkinson's Disease and Alzheimer's dementia? What features do these disorders share?

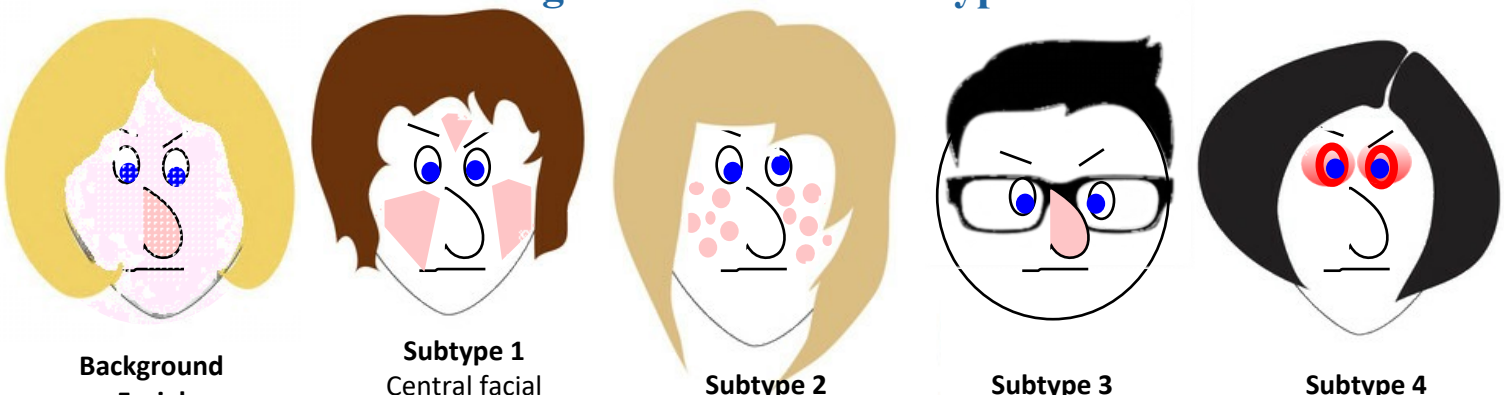
Social and emotional maladjustment can be severe among patients with rosacea. Others may misconstrue their red-faced skin as signs of alcoholism or recent drinking. In addition, 76% indicated that others stare at them, and 44% indicate that people avoid looking at them while they're speaking to them.[14] This leads them to avoid socializing and establishing new relationships. Healthcare providers need to understand the psychological impact of this skin condition and should consider recommending psychological support for patients with rosacea who experience psychological comorbidities or stress.

Rosacea's Relation to Other Conditions

Emerging evidence reveals systemic implications associated with rosacea beyond dermatologic or cosmetic concerns. Clinical trial findings suggest that people who have rosacea are 1.71 times more likely to develop Parkinson's disease than those who do not. And, if the patient's rosacea is of the ocular variety, he or she is at twice the risk of the general population for developing Parkinson's disease. Patients with rosacea, in observational studies, tended to develop Parkinson's disease 2.4 years earlier than matched controls.[15] The same research team evaluating the link between rosacea and Parkinson's disease additionally evaluated the risk of dementia, especially Alzheimer's dementia, and also found increased risk.[16] Studies have now documented that 34% of people with rosacea have been diagnosed with major gastrointestinal disorders including Crohn's disease, ulcerative colitis, or irritable bowel syndrome.[17] Rosacea has also been associated with increased risk of coronary artery disease, hypertension, dyslipidemia, diabetes, stroke, and brain and thyroid cancers.[18]

Rosacea represents a prevalent and debilitating dermatologic disorder with potential systemic implications. These factors necessitate awareness on the part of pharmacy personnel, and increasing vigilance for emerging treatment options that mitigate rosacea symptoms. They also need to be aware of best practice recommendations and evidence for ensuring appropriate treatment in providing patient care.

Figure 1. Rosacea Subtypes



Background Facial erythema

Subtype 1 Central facial flushing with persistent redness

Subtype 2 Papulopustular

Subtype 3 Phymatous

Subtype 4 Ocular

PATHOPHYSIOLOGY & ROSACEA TYPES

Despite the multitude of various drug and non-drug products recommended for mitigating rosacea symptoms, rosacea's pathophysiology remains elusive.[19] Numerous mechanisms have been implicated in triggering symptom occurrence. Specifically, inflammation and inflammatory changes represent major underlying factors contributing to symptom occurrence. The underlying inflammation affecting patients with rosacea is likely multi-factorial[19]:

- A defective or hyperirritable skin barrier may contribute to increased transepidermal water loss
- Elevated serine protease activity in the skin may result in cathelicidin peptide deposition and development of inflammatory lesions
- Increased levels neuropeptides have also been demonstrated in patients with rosacea.

Beyond inflammation, rosacea is likely characterized by vascular changes and with a neurovascular component underlying its symptoms. Rosacea patients flush or blush easily and more persistently than people who do not have rosacea, and this vasodilation can darken skin over time. It has been suggested that, while blushing, plasma extravasation (passage of blood out of a vessel into surrounding tissues) may trigger the inflammatory response, with repeated vasodilation resulting in smoldering inflammation.

Infestation with the microscopic *Demodex folliculorum* mite is additionally hypothesized to stimulate mononuclear cell proliferation and possibly, lead to the inflammatory response observed in patients with rosacea. While these mites are normal inhabitants of the skin, they are most commonly found in individuals affected by rosacea.

Rosacea Subtypes and Clinical Presentation

Many clinicians erroneously believe that rosacea is one single condition that creates sun intolerance and pervasive skin redness. However, rosacea occurs in four distinct subtypes (**Figure 1**)[12,21]:

- *Erythematotelangiectatic rosacea (ETR)* is rosacea's most common presentation and manifests as redness, flushing, and visible blood vessels on the face's surface. Flushing and redness occur in the center of the face and skin may appear swollen. Patients with ETR usually have extremely sensitive skin that stings and burns when met with triggers or when the patient tries to cleanse it. Dryness, roughness, or scaling may also occur.[12] Of note, clinicians and patients agree that diffuse vascular erythema (flushing, the most common symptom) is the most difficult aspect to treat and represents an unmet research need.[20]
- *Papulopustular rosacea (PPR)* manifests as redness, swelling, and breakouts that appear similar to acne. Breakouts may be transient and typically occur in areas of redness. Like patients with ETR, PPR patients also experience skin sensitivity and burning or stinging when the skin is challenged.[12]
- *Phymatous rosacea* (growth of excess, bulbous tissue) usually affects the nose but can also affect other areas of the face. Rare, the subtype typically develops in patients (and usually, in men) who have had a different rosacea subtype in previous years.
- *Ocular rosacea* causes red, irritated eyes. Patients often complain of "sties" and swollen eyelids. They report watery or bloodshot eyes that feel dry and gritty. Ocular rosacea may affect vision, and has been associated with light sensitivity and blurry vision.[12] Advocacy organizations and the American Academy of Dermatology indicate that many patients have undiagnosed ocular rosacea.[12,21]

Complicating diagnosis and treatment, many patients who have rosacea may have two or more of these subtypes. Treatment for rosacea should consider individual patients' symptoms along with phenotype and symptom severity.

Symptom Triggers

Rosacea skin is generally sensitive and numerous triggers exist that may cause, or exacerbate, rosacea symptoms (Table 1). Triggers may include exposure to temperature extremes or moving from a cold/hot place to a hot/cold place, strenuous exercise, heat from sunlight, severe sunburn, stress, anxiety, cold wind, medications and topical skin care products, foods and drinks such as foods high in histamines, and spicy foods, alcohol, foods and beverages containing caffeine (especially hot tea and coffee). An important aspect of self-care for patients with rosacea is learning to recognize which triggers are most irritating to their skin to optimize control of their condition.

Table 1. Rosacea Triggers[6]

Environmental	Sun exposure, heat, wind, cold
Emotional	Psychological stress, hilarity, embarrassment
Foods and beverages	Alcohol, hot or spicy foods and beverages, caffeine or caffeine withdrawal
Medications	Topical steroids, blood pressure medications
Skin care products	Lotions, sunscreens
Other triggers	Exercise; hot baths, showers, or saunas; menopause, hormonal fluctuations

Assessing Severity

The National Rosacea Society has recommended a standard rosacea clinical evaluation scorecard for grading the severity of primary and secondary signs and symptoms of disease. This standard approach to evaluation helps to distinguish disease subtypes. It also guides a therapeutic approach based on predominant symptoms. First developed in 2004, a 2017 update highlights the phenotypes—clinical presentations and observable symptoms—to tailor an individualized treatment approach.[22,23] The full recommendations from the Society and copy of the scorecard can be found at www.rosacea.org.

TREATMENT APPROACHES

Effective treatments for rosacea can help patients become more confident and less self-conscious about their facial problems. The goals of rosacea treatment include[19]

- maintain optimum skin condition
- mitigate the physical dermatologic symptoms of this condition
- delay progression from mild to more severe stages of severity
- facilitate remission and avoid exacerbations
- restore the patients' emotional well-being and quality of life.

Treatment requires a personalized approach, as different symptoms require different treatments and patient response to treatment may vary. A majority (upwards of 80%) of patients who are diagnosed and treated use more than one therapy sequentially or concurrently to manage their associated symptoms. Approximately one-third of patients may need three or more prescription medications.[24] Traditionally, treatment has included topical metronidazole, topical azelaic acid, and oral doxycycline. These treatments help many patients, but often, patients are either intolerant or unresponsive to therapy, with erythema particularly resistant and difficult to treat. Vascular laser or intense pulsed light therapy seems to be more effective for telangiectasia, but access is limited by its cost. Newer treatments, including brimonidine (for erythema), ivermectin, and modified-release doxycycline or other anti-inflammatory antibiotics can also be used alone or in combination with other topical or systemic treatments.

The most common reason for stopping a prescription medication is unacceptable side effects, which represents one opportunity for pharmacists to provide education and counseling. Strategies for reducing topical adverse effects include applying creams to dry skin (and avoiding application immediately after showering), and taking systemic therapies with food, among others.[15]

Treatments

In addition to the therapies previously mentioned, the U.S. Food and Drug Administration (FDA) has approved six topical agents for rosacea (metronidazole, azelaic acid [which is available as an OTC product also], sulfacetamide/sulfa, brimonidine, ivermectin, and oxymetazoline). Each therapy addresses a specific rosacea manifestation.[2] Clinicians need to select the topical that not only addresses patient-specific symptoms, but does so in a way that patients find tolerable. And, pharmacists and other clinicians need to be aware that approximately 80% of rosacea patients who receive treatment will need more than one prescription drug to address multiple symptoms.[24]

Importance of Dosage Forms

In a condition such as rosacea, the vehicle in which a topical product is prepared can have a significant impact on the patients' acceptance and ability to adhere with directions. A general review of product dosage forms is included here and, while not specific for rosacea management, pharmacists and pharmacy technicians should keep these generalizations in mind when educating patients with rosacea on dosage form selection.

Foams: Foams are a newer topical formulation and generally do not contain fragrances, formaldehyde, or nonformaldehyde preservatives. Their very low density makes them easy to apply and spread on skin surface. They are also designed to increased skin absorption, and they leave little residue on the skin, which is a feature patients appreciate. Some foams cause stinging or burning, especially if the skin is dry or previously irritated. They also have no occlusive effects, so they do not hydrate skin, and they are inappropriate for hairy areas.[25]

Lotions: Lotions are formulated with the dissolution of a drug into a water-based vehicle. Typically, lotions have a very fluid texture and leave no greasy feel on the skin, as this dosage form has a low oil-to-water ratio. While lotions are generally one of the easiest to apply of the topical dosage forms, frequent reapplication is critical for optimal efficacy. This formulation tends to be most appropriate for products used for skin moisturization, and may be preferred for children who may object to greasy vehicles.

Creams or gels: Creams or gel formulations are quickly absorbed by the skin and leave a little greasy feel after application, as the oil content in these formulations is less than in an ointment preparation. Creams or gels spread easily but patients need to reapply them frequently for best results. These formulations tend to be used for acute and subacute inflammation or for application to moist or weeping lesions.

Ointments: Unlike the creams, gels, and lotions, ointments tend to be absorbed slowly from the skin. The semi-solid, thicker consistency tends to have a greasier feel due to a higher concentration of oil compared with the other formulations. Ointments tend to spread only with effort but remain on the skin longer compared with creams, gels or lotions, thus increasing the exposure to the medicinal component and resulting in improved moisturization. Ointments tend to be preferred for dry, scaly lesions.

Topical Treatments

Topical treatments for rosacea are generally effective for treating inflammatory papules and pustules and for mild-to-moderate disease. These treatments vary in their dosage formulation, frequency of application, and common adverse effects associated with use.

Azelaic acid 20% (Finacea): Although the exact mechanism is unknown, azelaic acid may reduce the erythema and papules and pustules associated with rosacea. Available as either a gel or a foam, this product is applied twice daily to the affected area, avoiding the eyes and mucous membranes. Notable adverse effects including skin irritation (pruritis, burning, or stinging) that may subside over time, along with hypopigmentation of the skin.[26]

Metronidazole (Metrogel & generics): Metronidazole has been associated with a statistically and clinically significant improvement in erythema associated with rosacea and may reduce the number of lesions associated with this disorder. Available in both 0.75% and 1% gel or cream preparations, this drug is usually applied as a thin film to the affected areas once daily. Generally well-tolerated, adverse effects associated with metronidazole may including pruritis, skin irritation, and dry skin.[27]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Brimonidine (Mirvaso): An alpha-adrenergic agonist indicated for persistent erythema, brimonidine is applied once daily to the affected areas of the forehead, chin, nose and cheeks, with care to avoid the eyes and lips. Although generally well-tolerated in clinical trials, adverse effects may include erythema (rebound or worsening erythema may occur), flushing, skin burning, and contact dermatitis.[28]

Oxymetazoline (Rhofade): Patients with rosacea used over-the-counter nasal oxymetazoline as a topical vasoconstrictor for years off-label to treat facial redness. For many patients, it effectively reduced redness but was messy to use. It also contained unnecessary ingredients that could be irritating. A topical cream formulation received FDA approval in 2017 for rosacea. As an $alpha_{1A}$-receptor agonist, this topically applied cream serves as a direct vasoconstrictor. A pea-size amount of cream is applied to the face once daily, with common adverse effects including application site dermatitis, worsening inflammatory lesions, pruritus, and pain.[29]

Ivermectin (Soolantra): Although its mechanism is unknown, ivermectin is associated with a reduction in papules and pustule lesions vs. placebo. As an external cream, ivermectin is applied once daily and common adverse effects including a burning sensation and skin irritation.[30]

Systemic Treatments

For moderate-to-severe rosacea symptoms, systemic therapies may be necessary, but are generally reserved for more severe disease as they carry a greater incidence of adverse effects and necessitate more involved clinical monitoring for toxicity.

Oral doxycycline: Oral doxycycline may be effective for relief of background erythema and papules and pustules associated with rosacea, with doses of 40 mg (modified release) or 100 mg (immediate release) once-daily effective for this purpose. Doxycycline is not without adverse effects; it is contraindicated in pregnancy, like all tetracycline derivatives, and clinicians must consider concerns regarding antimicrobial resistance, gastrointestinal adverse effects, esophagitis, and photosensitivity.[4] Some patients find oral doxycycline for 10 to 14 days helpful when they experience flares. Pharmacy should note that the 40 mg formulation of doxycycline that is FDA-approved specifically for rosacea should not be used to treat or prevent infection.[31]

Oral tetracycline: Another systemic antimicrobial agent, oral tetracycline additionally may be effective at reducing the papules and pustules of rosacea. While contraindicated in pregnancy, other adverse effects, including gastrointestinal intolerance and antimicrobial resistance, warrant additional clinical evaluation regarding potential risks and benefits prior to use.[4]

Isotretinoin: For individuals unresponsive to, or with contraindications or intolerance to the tetracycline derivatives, low-dose (0.3 mg/kg) or intermittent-dose isotretinoin therapy could be considered. Generally thought to treat PPR, it also seems to help ETR. Although clinical evaluative studies and outcomes data are limited, anecdotal evidence suggests this alternative only if careful monitoring for adverse effects is undertaken, including an absolute contraindication in pregnancy, caution in women of child-bearing potential, and monitoring for skin dryness and irritation.[4]

Laser and Light Therapy

Vascular laser treatment (Nd:YAG or pulsed dye laser [PDL]) or intense pulsed light [IPL]) may ameliorate erythema, although these therapies have not been evaluated in placebo controlled trials.[4] While clinical experience is generally positive, outcomes associated with this therapy depends on the treating physician's training and expertise. While improvement may be rapid and significant, multiple treatment sessions may be necessary to achieve desired outcomes, which may be costly. Access may be limited and adverse effects, including swelling, bruising, and redness, may persist for several weeks after treatment. Nonetheless, guideline evidence recommends offering this approach to patients to allow a full spectrum of treatment options, including risks and benefits, for their evaluation.[4]

Pause and Ponder:
Can you summarize the risks and benefits, and place in therapy, for the various treatments available for rosacea? Which treatments are best for alleviating erythema? Papules and pustules?

HELPING PATIENTS WITH ROSACEA AT THE PHARMACY

Table 2 summarizes general education and counseling recommendations for pharmacists.

Addressing Under-Treatment

Under-treatment for rosacea symptoms is common, despite the fact that numerous self-care and prescription-only treatment options exist for this condition. Researchers evaluating a claims-based data set covering 18.6 million patients found that 165,130 were being treated for rosacea. Using a conservative estimate of a 5% prevalence for rosacea, investigators concluded that an estimated 930,000 of these patients have rosacea, meaning 82% of rosacea patients were untreated.[32] Symptom management is available, but only 33% of rosacea patients are treated with the oldest, least expensive drug (metronidazole). Rates of prescription uptake among rosacea patients are extremely low; a study enrolling 600 individuals found that most rosacea patients reported not using any FDA-approved topical or oral drug in the month prior to the study. These authors report that patients perceive the long-term efficacy of these drugs to be poor, and among the patients who had used topicals, approximately 50% were dissatisfied.[32] This indicates that patients may need to be educated about prescription treatments, and encouraged to try them.

Addressing Triggers and Managing Flares

Clinicians need to understand that rosacea waxes and wanes, and during flares—which can occur quite often or infrequently—patients may need to step up care and add an oral treatment.[12] More than half of patients experience monthly outbreaks or symptom escalation, and among these patients, 30% indicate that the outbreaks last more than a day.[34] Numerous triggers have been associated with flares, and for many patients, identifying and avoiding triggers is a frustrating exercise in futility.[12] That said, patients can take an active approach to identifying triggers by maintaining a rosacea diary or "selfies" on their smartphones to monitor symptoms and exacerbating factors. They may confide in a friend or partner to help track symptom occurrence.[35] The bottom line is that treatment with over-the-counter and prescription drug products needs to be individualized to each rosacea patient's specific subtype and symptoms. Pharmacists can help patients identify triggers, manage flares, and seek appropriate step-up care when necessary.

Table 2. The Pharmacist's Role in Rosacea Management
Identify current rosacea patients and screen patients who ask for help in the over-the-counter aisle for rosacea symptoms
Identify suitable over-the-counter products including cleansers, moisturizers, and photoprotection for patients who have rosacea, including guiding patients to products that have the least irritating ingredients, or that have been formulated for or tested in rosacea patients
Routinely inspect patients' medication regimens to make sure that they are not taking drugs that aggravate rosacea
Refer rosacea patients to prescribers for prescription strength medication
Counsel patients about rosacea triggers and appropriate use of the multitude of products that they are apt to need, along with lifestyle modifications that improve their overall health
Consult with prescribers, recommending that they step up treatment when patients are experiencing difficulty
Work with patients so that they understand that rosacea is a chronic inflammatory condition that will need treatment for the remainder of their lives

Skin Cleansing and Cleanser Selection

Patients with rosacea usually have extremely sensitive skin that reacts to mild irritants or substances that produce noxious sensory stimuli and/or combination skin, which is both dry and oily. As part of a self-management skin care routine, pharmacists and pharmacy technicians can steer patients with rosacea toward gentle skin cleansers. Such products remove excess sebum and environmental debris effectively in addition to desquamating corneocytes, unwanted organisms, and old skin care and cosmetic products from the skin surface. Patients should be reminded that it is counterproductive to use an anti-inflammatory skin cleanser to treat rosacea if it removes intracellular lipids. Removing these lipids is likely to further exacerbate inflammation.[36,37]

Daily skin cleansing is essential for removal of dirt, oil, other environmental pollutants, and bacteria from skin; however, patients who have skin conditions like rosacea face a "cleansing paradox," since cleansing typically weakens the skin barrier.[36,38] Nonetheless, cleansing serves an important function by removing dead surface cells and preparing skin to absorb topically applied medications better. Cleansers based on mild synthetic surfactants and/or emollients that cause minimal barrier perturbation are ideal for these patients.

Patients with rosacea should bathe or shower no more than one to two times daily with lukewarm water and very mild cleansers; many cleansers include surfactants that interact detrimentally with the stratum corneum's proteins and lipids. For patients with rosacea, soap-based products may exacerbate their problems. Mild cleansing products typically include only the following: water, petrolatum, stearic acid, mineral oil, glycerol mono-stearate, cetyl alcohol, preservative, thickener. Additionally, non-soap based surfactants and synthetic detergents, or syndets, with a neutral to low pH can be recommended.

Patients should dry the affected areas without rubbing (pat dry gently) and to leave some moisture on the skin, as overdrying may exacerbate the condition. Unscented oils or emollients should be applied to the body—but not the face—immediately after showering or bathing. Keeping a diary of what bathing practices and cleaners help—or exacerbate—the condition may be helpful.

Sunscreen and Moisturization Tips for Patients with Rosacea

As previously mentioned, rosacea patients use a large assortment of nonprescription skin care products and cosmetics with sunscreens being the most critical component of their skincare regimens. Patients with rosacea should use a broad-spectrum sunscreen with a sun protection factor of 30+, preferably containing inorganic dimethicone and zinc oxide; these components do not release heat when exposed to UV radiation but rather reflect the sun's energy. Guidelines recommend application of a silicone-base moisturizer daily, with care to avoid sensitizing and irritating coconut, olive, hemp, argan, and sunflower oils.[6,36]

Pharmacists and pharmacy technicians should know which products they stock that are appropriate and inappropriate. Many are labeled as redness relief. These are not among the most popular of products, so they often occupy top or bottom shelves, leaving the eye-level shelves for fast-moving, more popular products. In addition, pharmacy staff should note that many redness relief products are tinted with a greenish base color. These products reduce the appearance of redness, but not all patients like them.

Table 3. Complementary and Alternative Medicines Used in Rosacea[40-42]

CAM that may help rosacea		CAM that may aggravate rosacea
Allantoin*	Green tea	Clove oil
Aloe vera*	Lavender	Eucalyptus oil
Camphor oil	Licorice (especially *Glycyrrhiza inflata*)*	Menthol
Chamomile	Oatmeal	Peppermint
Feverfew*	Tea tree oil	Witch hazel
Ginkgo biloba*		

**Products with the most clinical evidence of efficacy*

Screening Concurrent Medications

Medications and topical irritants can—and do—trigger rosacea flares. Concurrent medications are a significant concern for people who have rosacea. Calcium channel blockers, vasodilators prescribed for hypertension, and niacin may also cause facial vasodilation, resulting in a rosacea flare-up. Angiotensin converting enzyme inhibitors or angiotensin receptor blockers are preferred in patients who have rosacea. Long-term use of topical steroids, especially those that are fluorinated, can aggravate rosacea or induce a rosacea-like condition.[39] Many patients spend considerable time on the Internet trying to determine if medications prescribed for them are aggravating their condition, or if other medications might address a comorbidity and concurrently soothe their raging skin. Pharmacists need to understand that certain prescription medications may induce or alleviate symptoms, and provide oversight so that patients are or are not prescribed these drugs.[20]

And, as previously mentioned, rosacea patients use a large assortment of nonprescription skin care products and cosmetics with sunscreens being the most critical component of their skin care regimens. Topical products that contain alcohol, fragrance, witch hazel, menthol, peppermint, eucalyptus oil, clove oil, and salicylic acid are apt to aggravate sensitive rosacea. Microdermabrasion and chemical peels and products with high dosages of isotretinoin, benzoyl peroxide, or tretinoin are troublesome, too. Patients should gently cleanse using their fingertips, not abrasive cloths or other cleansing tools. Pharmacists need to be aware of the products that are least likely to aggravate rosacea (those that do not contain the ingredients noted above) and recommend use accordingly.

Patients who have rosacea also turn to complementary and alternative ingredients, too.[40,41] Sometimes they do so because conventional therapy not working, but others simply like the idea of using "natural" products.[42] **Table 3** lists those that may help, and those that may be problematic. Many patients don't mention their use of herbal ingredients to healthcare providers, and pharmacy staff should not hesitate to ask patients what they use. It's helpful to be able to counsel them about ingredient efficacy and potential adverse effects. Pharmacy staff should also note that among patients who have rosacea who were asked about CAM, 69% reported that CAM did not lead to improvement.[42]

Counseling on Correct Application to Avoid Skin Irritation and Maximize Benefit

In providing education for the patient with rosacea, pharmacists can recommend tactics that may reduce the likelihood of experiencing adverse effects, which in turn, may promote product adherence and patient compliance with treatment. As one example, pharmacists should encourage patients not to apply products that may be irritating or that sting to wet skin.

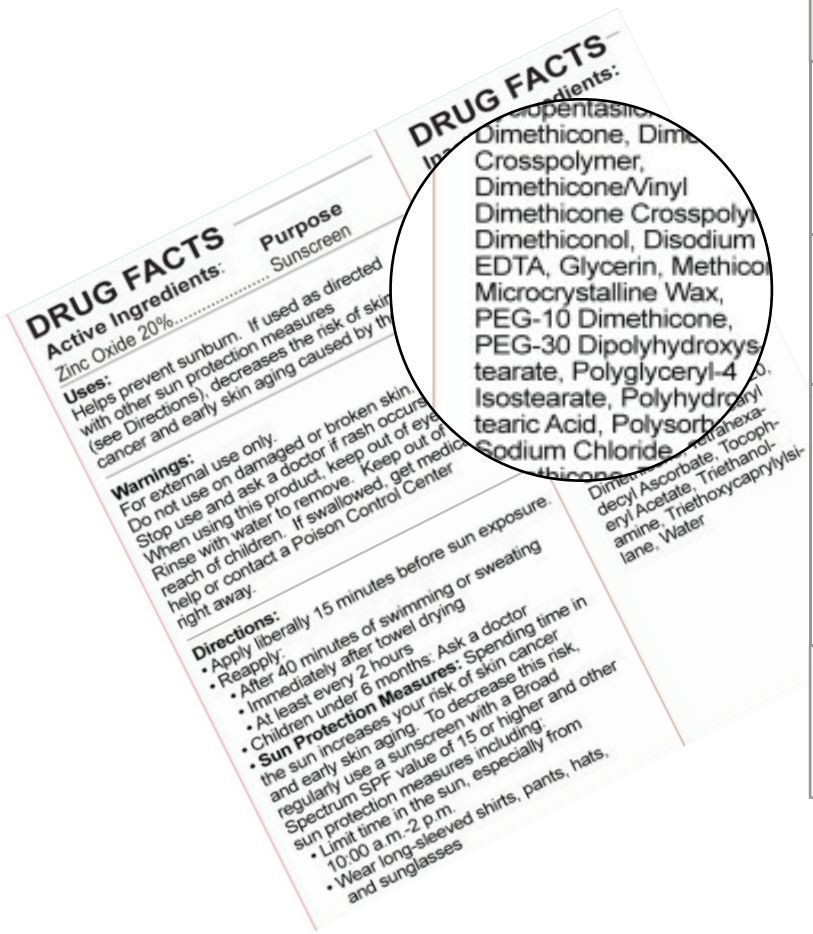
Application of multiple topical products can be very confusing for patients and healthcare providers alike and no consistent guidance or guideline evidence to suggest best practice in this area exists.[42-46] If the patient uses only moisturizers and cosmetics, pharmacists should counsel them to use a mild skin cleanser first, then apply sunscreen-containing product. If the patient uses medicated products, they should:

- Use cleanser first
- Apply medicated products before cosmetics
- Apply products with the thinnest consistency before thicker, creamy, or ointment-based products; occlusive products may prevent other products from penetrating
- Wait for each topical to dry before applying the next

Clinical Pearls for Managing Rosacea

Pharmacists can educate patients with rosacea about a number of different strategies and pearls as part of self-care for their disorder. First and foremost, these patients should use all topical agents with care and caution; if a reaction seems possible or probable, stopping all topicals, and using only a lipid-free cleanser and a bland moisturizing cream for two weeks is warranted. A number of topic products contain ingredients such as retinoids, benzoyl peroxide, glycolic acid, or propylene glycol, that can dry and irritate the skin, particularly if the patient suffers from rosacea. Facial skin friction can exacerbate dermatologic conditions, including rosacea; patients may consider discontinuing any physical activities that involve facial skin friction (e.g., horseback riding, football, and cycling) for which a helmet with a chinstrap is required.[36,47]

Rosacea patients use many nonprescription skin care products and cosmetics with sunscreens being the most critical component of their skincare regimens.



As an inflammatory disorder, the sensitive skin of patients with rosacea may be allergy-prone; these patients have elevated risk for nickel, fragrance, balsam of Peru, potassium dichromate, and gentamicin allergy. Referral for patch testing to identify allergens in common topical skin preparations may be prudent for individuals particularly sensitive to common non-prescription cleaners and skin care products. Additionally, recommending a use-test for all new products and cosmetics, with application of a 2-cm area lateral to the eye for at least five consecutive nights before general facial application may avoid more diffuse facial irritation.[36,47]

Rosacea shares commonalities and clinical characteristics with other dermatologic skin disorders, which should not be overlooked. Many dermatologic conditions wax and wane, and rosacea is no different. Sometimes, it may seem like a medication is working, but symptom improvement may be spontaneous and unrelated to drug product use. Patients should be counseled on the fact that they will need many interventions for the remainder of their lives to maintain remission and reduce the risk of disease flares. Patients must be prepared to try medications for adequate durations (up to eight weeks or longer), as stubborn symptoms can take weeks to months to resolve. Finally, patients with rosacea should wear sunscreen daily and avoid sunlight, a common trigger that can exacerbate symptoms.[4,36]

ADDITIONAL RESOURCES

The National Rosacea Society
https://www.rosacea.org/
▪ Provides detailed education and awareness information, coping tips, and latest news and research
▪ Offers a free trigger diary

The American Academy of Dermatology's Rosacea Page
https://www.aad.org/public/diseases/acne-and-rosacea/rosacea
▪ Patient-friendly information about rosacea

The American Academy of Dermatology's Skin Care Tips for Rosacea
https://www.aad.org/public/diseases/acne-and-rosacea/rosacea/6-rosacea-skin-care-tips-dermatologists-give-their-patients
▪ Lists ingredients that people who have rosacea should avoid, and those they should look for

Clinicaltrials.gov
https://clinicaltrials.gov/
• Allows patients to search for clinical trails by disease, rosacea subtype, and location

Pause and Ponder:
How might you identify or educate a patient with rosacea after participating in this activity? What might you underscore in your counseling?

The Pharmacy Technician's Role

At the point-of-sale, the pharmacy technician may be able to recognize the patient with rosacea. Since this population is likely to use numerous skin care products to control the underlying skin condition, pharmacy technicians can

- Offer assistance and additional product information
- Help patient read product labeling, and identify ingredients that are or are not appropriate
- Review appropriate application technique
- Recommend appropriate counseling and education from the pharmacist when patients seem frustrated or dissatisfied with their treatment

CONCLUSION

Rosacea represents a common dermatologic affliction that may interfere with patient's activities of daily living, quality of life, and, ultimately, self-esteem. It is imperative pharmacists be able to recognize the hallmark symptoms in order to discern rosacea from other skin disorders, and be aware of treatment options that exist for managing rosacea symptoms. Myriad treatment options now exist for managing rosacea and patient education must include non-pharmacologic and hygiene practices in addition to the appropriate use of various pharmacologic treatment options.

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