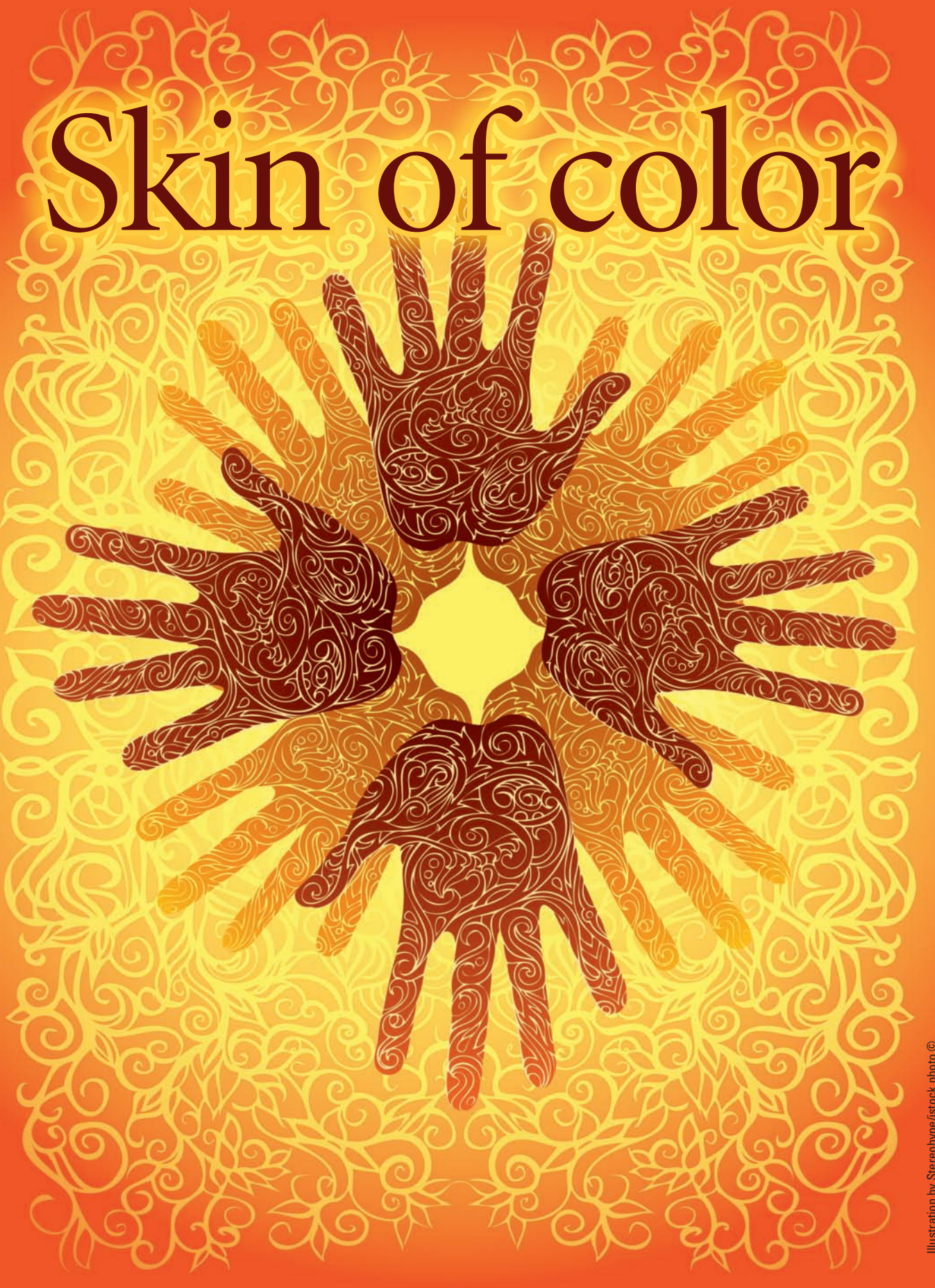
Skin of color



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A basic outline of unique differences

Abstract: Darker skin differs from white skin in presentation, a tendency toward pronounced scarring, and pathophysiology of skin diseases common to those with skin of color. Recent studies highlight differences beyond the surface, which include issues of treatment, scar formation, collagen production, basic structure, and skin cancer development.

By Victor Czerkasij, MA, MS, FNP-BC, NP-C

The U.S. Department of Health and Human Services has published a directive that states that healthcare service providers in the United States be "respectful of and responsive to the health beliefs, practices, and needs of diverse patients to help close the gap in healthcare outcomes."[1] Known colloquially as "cultural competence," the directive hopes to continually encourage all healthcare providers to become more effective in prevention of illness, alleviating sickness, and promoting optimum health in the context of the various attitudes, beliefs, and views of each distinct ethnic group served. Becoming more effective personally begins with practitioners reflecting on their own self-identity and personal beliefs and honestly confronting misconceptions and prejudices.[2]

The major impetus behind this movement is the current population shifts. The Census Bureau is projecting that the familiar makeup of the residents of the United States where Whites are a majority will decisively shift nationally in the next 30 years or less, and that the proportion of individuals who are currently considered as minorities (Asian, Black, Hispanic, American Indian) are soon to become a very significant majority.[3]

For healthcare (dermatology in particular), culturally competent care and population realities will require a development of understanding and skill sets needed to manage ethnic skin, skin of color, or individuals whose skin is classified as IV, V, or VI on the Fitzpatrick Skin Phototype scale, defined as sun insensitive skin, uncommonly burns, and contains high pigmentation.[4] However, the familiar instrument is being called into question as possibly having limited use because some have stated that terms such as "sunburn" or "suntan" are Euro-centric and have little basis of relating to those in the Black community.[4]

In addition, defining beauty and achieving a state of comfort with one's projection of self must be taken into account.[5] There is no longer one standard of beauty, and healthcare providers need to adapt to the diverse population and understand how to accommodate the needs of the patient. "Ethnic patients do not necessarily want a Westernized look because what constitutes beauty is determined by racial, cultural, and environmental influences."[5] There has been a growing sense of frustration among Hispanics, Asians, American Indians (which also includes Pacific Islanders), and Africans–who make up the majority of the population worldwide–that healthcare providers in the United States do not understand the particular needs of their unique backgrounds, and in particular, diagnosis and care for darker skin. These experiences have triggered frustration and levels of stress across groups.[6] Compounding the challenge, few historically Black colleges or universities offer education in dermatology, with Howard University in Washington, DC, being an exception, training

Key words: collagen formation; ethnic skin; Fitzpatrick scale; hypopigmentation; hyperpigmentation; keloid formation; melanocytes; melanin; pigmentation

the first Black dermatologists prepared to serve their communities roughly 50 years ago.[7] Within the field of dermatology, there is an emerging subspecialty and growing body of knowledge in the last few decades of ethnic dermatology and an increasing number of seminars offering instruction on skin of color.[8]

The challenges

Darker skin is not only different because of color, but it also has differences based on presentation, cultural practices, the tendency toward pronounced scarring, and a pathophysiology and spectrum of skin diseases common to these groups. In addition, individuals now seek more aggressive treatment for conditions like vitiligo, atopic dermatitis, and discoid lupus erythematosus (DLE), and demand a variety of cosmetic services based on their unique needs, such as laser hair removal, scar treatments, and skin lightening.[9] It is also important to add that cultural practices, even among a single race, vary significantly. With an increased number of ethnic groups immigrating and traveling to the United States, healthcare providers are seeing new and unfamiliar cultural practices, customs, and beliefs that can be challenging. Healthcare is changing in ways that could not have been imagined 10 years ago. Millions of people are entering into opportunities with insurance through changes at the federal level and will soon be gaining access into provider's offices. Healthcare providers need to be prepared to provide care based on the most recent research and best practices that current understanding affords.

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Defining skin of color

White skin also contains various levels of pigmentation as described in the Fitzpatrick scale I to III. The scale states that an individual can either "always burn" or "tan slowly."[5] The incidence of severe sunburns, the prevalence of rosacea, actinic keratosis, and skin cancers are higher in Whites.[10] However, skin that is more darkly pigmented is not simply skin of a deeper shade than white.

Melanocytic cells that help produce melanin pigmentation under specific stimulating processes are found in equal amounts in both light- and dark-skinned individuals.[11] UV radiation, hormonal activity, and other triggers move the melanocytes into activity, foremost being the production of melanin. This activity response is more elevated among those of Asian, Hispanic, and Black descent but much less among Whites. Melanin, which is the pigment most responsible for the color of the skin, results in shades of yellow or red (*pheomelanin*) or shades of brown to black (*eumelanin*). Naturally, this response is to protect the skin from UV radiation and the subsequent damage it can cause, commonly referred to as tanning. All races have the same amount of melanocytes; the main difference is that of response.

Differences of skin between the races

An important study determined many interesting differences and characteristics between races not previously noted in earlier literature.[12] In comparison to white skin, black skin (and darker skin in general) has a thick, compact dermis with prominent and numerous fiber fragments. Superficial blood vessels are abundant, dilated, and rich in glycoproteins, which play an important role in cell-to-cell interaction and help power white blood cell recognition, a crucial process in the immune response.

For example, collagen–a powerful natural protein that gives skin its unique reliance and durability, a layer of skin between the surface epidermis and soft mass of subcutaneous fat–is of a subtle and key difference from lighter-skinned counterparts. Blacks have extremely compact bundles of collagen and in greater numbers resting just below the epidermis, and "the dermal-epidermal junction (DEJ) length in (Black) skin was about threefold that in Whites"[13] The difference in collagen between the Black and White populations is an area of interest for researches, who regularly observe differences at the cellular level, and in particular, the effect of collagen on keloid production.[12] Another area of interest to researchers is to determine if higher levels of melanin contribute to collagen protection over the years, and if increased skin tension, exacerbated by the tight collagen bundles, contributes to exaggerated levels of scarring. For example, areas of the integument where collagen is less prominent tends to not develop scars. Located on the eyelids or foreskin, it is free from collagen, lending some weight to this argument.[14] Today, collagen is the target of much publicity and marketing to individuals who want to avoid the eventual effects of aging. Many topical products promote collagen in their formula as an answer to wrinkling through increased collagen stimulation. One can also have collagen injected directly into the dermal layer and is sold under many brand names, but regardless, its role and understanding in skin health is still being explored.

Ethnic skin is very prone to either a loss or gain of color adjacent to other areas of the body, collectively referred to as dyschromia, but known as hypopigmentation, which is often the result of cutaneous inflammation, injury, or dermatologic treatment. Most cases of postinflammatory hypopigmentation improve spontaneously within weeks or months if the primary cause is removed; however, it can be permanent if there is complete destruction of melanocytes.[15] Darker skin can see the reverse challenge, which is the increase of darkening (hyperpigmentation), as again opposed to adjacent skin. Melasma, a common, acquired facial skin disorder that mostly involves sun-exposed areas can occur in both men and women. It is more common in darker skin types (Fitzpatrick skin types IV to VI) especially Hispanic, Asian, and Black individuals. The onset of the melasma is at puberty or later, with exception of darker skin types, who tend to develop this problem in the first decade of life.[16] In discussion with patients with ethnic skin, this situation is often of equal concern as the primary condition under treatment. Treatments for either lightening or darkening skin are numerous, but simply understood, darkly-colored skin requires attention to care in bathing, moisturization, and requires limits to UV exposure, which can lead to increased melanin production, resulting in differing colored patches across the skin even early in life.

Another phenomenon observed in skin of color is the tendency toward excessive scarring and scar formation. Many theories persist in the aforementioned theory of collagen bundling. The key point is that following a specific cutaneous injury (such as surgery, trauma, illnesses, or piercings), the fibrous tissue that develops in response–as the inflammatory cascade in all individuals–is far more exaggerated and almost hyperreactive for patients with skin of color. Sometimes used interchangeably, the term "scar" is best used to describe growth that stays within the confines of the injury and tends to fade with time. A keloid, while benign, is somewhat distressing to patients, as it can become much larger than the original trauma site. It is often found in areas observed by others, such as ear lobes, face, neck, and chest. Some keloids are also associated with pain and sensitivity and may require considerable knowledge and experience by the provider for treatment.[17] Some researchers do not believe that it is possible for Whites to develop "real" scars, and that true scarring–the thick formation of firm, raised keloids–is more likely an aberration of melanocytic-stimulating hormones as evidenced by the fact that virtually no one develops keloids on the palms and soles of the feet, areas absent of melanocytic activity across all races, except for the occasional nevus or true melanoma.[18] The authors also indicate that the likelihood of scarring among ethnic groups is 15 times higher than in Whites, a statistic that should raise red flags in any conversation with a patient of color that is facing surgery or treatment of the skin that involves some level of trauma.[18]

Because the stratum corneum in black skin is equal in thickness to white skin but more compact, the greater cohesion between keratinocytes results in vesicles and bulla that remain intact longer than similar lesions on white skin.[19] The clinical significance is apparent when attempting to diagnose the familiar eczema presentations in the White population that have a familiar wet, spongiotic appearance. In the Black population, the thicker cohesion will be somewhat papular and lichenified. By the time some Black patients have a wet presentation, there is a high degree of suspicion of a secondary bacterial infection, which calls for a culture and sensitivity.[20] Additionally, because transepidermal water loss is greater in Blacks than Whites, it may account for greater increases in xerosis, though studies are inconclusive and ongoing.[20]

There has been literature to suggest that sebum manufacture is somewhat different between the races, but there is no known study that proposes one race suffering from oil production to a greater extent than another. Additionally, rosacea is not only a condition of fair-skinned women, as many women of color suffer from this disorder and are possibly underdiagnosed at this time.

Ethnic skin has had challenges with eczema and contact dermatitis as evidenced by a recent study that reports while acne, unspecified dermatitis, or eczema are in the top five presenting complaints for all major U.S. racial and ethnic groups, Hispanics and Blacks are least likely of all racial groups to seek treatment from dermatology care specialists.[21] When treatment is sought by Hispanic and Black patients, the skin condition is more severe.[21] In addition, a small study also attested that when comparing presenting conditions between races, Blacks had a higher rate of eczema and alopecia than Whites.[22] Eczema can sometimes appear as a soft ivory, a light lavender, or even a faint brown with scale. Few studies have provided a biologic factor as

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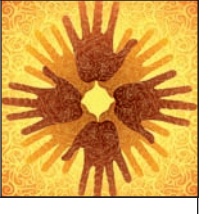


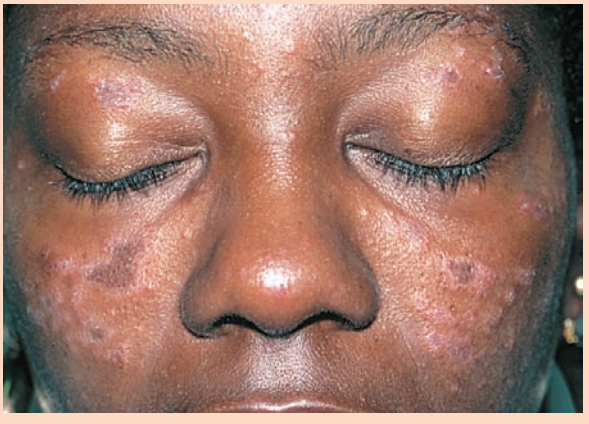
the culprit for higher rates of atopy among darker-skinned individuals.

Specific conditions and their challenges

The diagnosis and treatment of skin conditions pertaining to non-Whites is a vast subject. Each presentation, whether viral or bacterial, fungal or yeast, systemic inflammatory, or simply localized, is compounded by the color of skin and may warrant a future discussion. It is, however, worth noting the major differences and understanding crucial facts of some of the most serious lesions.

Lesions of DLE

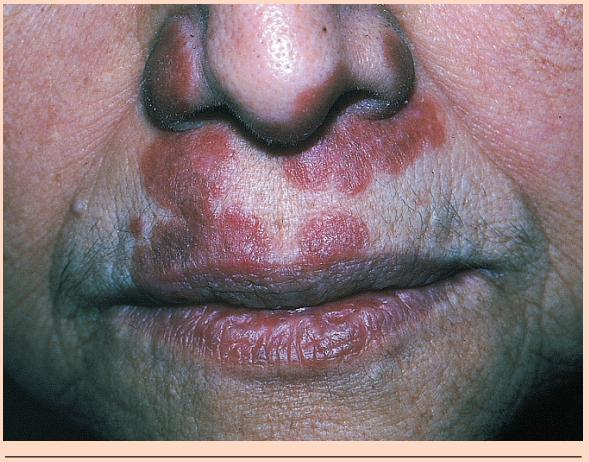
The erythematous, scaly, disc-shaped scarring plaques of discoid lupus erythematosus are seen on the face of a Black woman.



Source: Goodheart HP. *Goodheart's Photoguide of Common Skin Disorders.* 2nd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2003.

Cutaneous sarcoidosis

Reddish-violaceous plaques are seen above the upper lip of a Black woman with sarcoidosis.



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Discoid and systemic lupus erythematosus

Discoid lupus erythematosus (DLE) is more common in the Black population than in the White population (See *Lesions of DLE*). In research over a 10-year period of some 59,000 Black women, four new genetic variants have been discovered that give a higher risk of systemic lupus erythematosus (SLE) in Black women. They not only have higher risk than White women but also tend to have more severe diseases compared with Whites.[23] SLE is a complex autoimmune disorder that is not a skin disease but a full-body disorder that also has dermatologic manifestations. It is triggered by any number of events, including a change in medications, recent illness, emotional stress, or even an inordinate amount of exposure to the sun. As a result, the patient may complain of increased pain, a diffuse red, irregular rash, swollen joints, or fever. According to womenshealth.gov, Black women are at least three times more likely than White women to present with undiagnosed SLE and should be carefully evaluated for the disorder.

Sarcoidosis

Sarcoidosis is also a disorder that differs significantly among the races and affects Black women disproportionately. It is a systemic disorder of unknown etiology that occurs among men and women of all races and can strike nearly every organ of the body. Sarcoidosis usually starts in the lungs, skin, and/or lymph nodes. The disorder can affect the joints, and multiple organs, including the heart, liver, eyes, and the brain.[24] Black women are most frequently and most severely affected.[24] Sarcoidosis results in the development of granulomas, which are small masses closely resembling tumors. These clumps of cells that cause the granulomas are primarily made of cells from the immune system (macrophages and lymphocytes), so the question to ask is this: Is this disorder a result of an immune system response, and if so, what is the trigger that forms a granuloma formation? If the body is unable to slow or stop the response, granuloma formation will travel from the initial organ to others. If diagnosed early, corticosteroids (prednisone) are the treatment of choice, but not a cure. Fortunately, the progression of sarcoidosis can slow significantly.

Diagnosis is a challenge, as some of the early symptoms are nonspecific, and include irregular pink to red raised lesions that coalesce (see *Cutaneous sarcoidosis*). Because sarcoidosis may involve the lungs, consider a chest X-ray if the

patient presents with dyspnea and a cough (particularly if the patient does not have a history of smoking or asthma).

Nonmelanoma skin cancer

Skin cancer makes up approximately half of all cancers in the United States and afflicts Whites disproportionately,[25] but there are some key features that distinguish people of color. Skin cancers are named from the general area of which they arise. Basal cell carcinoma (BCC) is also the most common skin cancer in Hispanics and Asians and very likely to have multiple lesions. Scars and ulcers are risk factors for BCC in darker skin and are usually pigmented and "pearly" rather than translucent and thought to be a seborrheic keratosis on presentation.[26] Distribution in Blacks is similar to Whites, favoring the head and neck.

Squamous cell carcinoma (SCC) for darkly pigmented skin has important implications, excluding melanoma. SCC accounts for 75% of all deaths attributed to skin cancer and is the most frequently diagnosed skin cancer in Blacks.[26] It typically presents as a sore that will not heal on body sites infrequently exposed to the sun. Additionally, SCCs may also arise from DLE lesions and metastasize at a great rate than if they arise from any other lesion or condition on the body.[27] One study found that only Black males developed SCC in the anogenital region, while only Black females were found to have SCC on their legs.[28] Furthermore, while the metastasis rate of SCC in Whites caused by chronic UV light exposure is less than 3%, the metastasis rate for Blacks in areas of chronic scarring is much higher at 30% (see *SCC in a burn scar*). Although skin cancer occurs at a lower rate in ethnic skin as compared with Whites, the morbidity and mortality among pigmented skin is much higher. In addition, postponement of diagnosis can result in significant tissue destruction and death.

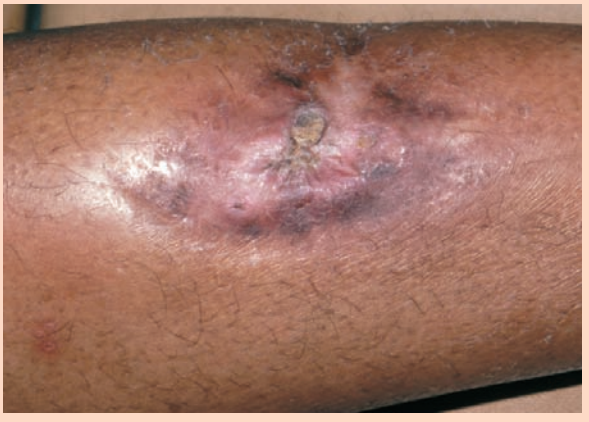
Melanoma

Melanoma is a cancer that encourages melanin to replicate, ulcerate, and break through into the blood vessels and lymph system of the body. It continues to increase worldwide, and in the United States, has increased by approximately 2.8% annually since 1981. More common in Whites, it is generally more prevalent in men, but a 6.1% annual increase in U.S. incidence of melanomas in White women younger than age 44 is of great concern. Melanoma incidence is greater in higher economic groups and deadly in later stages.[29]

Although malignant melanomas are commonly found on sun-exposed skin of Whites, the more overlooked incidence of melanomas in Blacks, Asians, and American Indians is on sun-protected skin, such as palms, soles of feet, nail beds, and in the mouth.[28] According to Park and colleagues, the conclusion was age at cohort entry, male, and susceptibility to sunburn phenotypes may be predictive of malignant melanoma risk in non-White populations (excluding Blacks).[30] In other words, the darker the skin, the more unpredictable it was to be definitive as to where a malignant lesion could be and how it presented itself. Black patients do not require different treatment, should receive a thorough skin check at regular intervals, and each unexplained lesion should be looked over by a person trained to use a dermatoscope or biopsied to obtain a satisfying conclusions. It is well reported over the years that in multiple cases, Hispanic and Black patients tend to present with more advanced tumors, and thus, tend to have a poorer prognosis with higher mortality.[26] Ethnic skin displays unique differences based on presentation, cultural practices, and the pathophysiology of skin diseases. As providers, nurse practitioners should concentrate on developing visual skills, asking key questions, and understanding treatment differences unique to today's diverse environment, to achieve successful outcomes for every patient. NP

SCC in a burn scar

Squamous cell carcinoma has developed in the burn scar of an extremity in this patient.



Source: Goodheart HP. *Goodheart's Photoguide of Common Skin Disorders.* 2nd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2003.

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Victor Czerkasij is a Nurse Practitioner, Skin Cancer and Cosmetic Dermatology, PC of Cleveland, Tenn.

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