One of the most frustrating experiences for dermatologists must be encountering a patient who, despite ample warnings about skin cancer risks, presents to the office with a deep golden tan or an obvious sunburn. Despite our best efforts to encourage sun avoidance and sunscreen use, it seems some patients simply do not heed the warnings. Worse still, some patients—especially teens and young adults—continue to use UV tanning beds at startlingly high numbers.

The tanning industry has yearly revenues of billions of dollars. This of course allows for a number of advantages that any megacompany would hold: the ability to advertise at will, promote the “wellness” of the industry, and at the same time lobby state and federal government officials. Although initially utilizing UVA, recently, tanning lamps have been emitting greater amounts of UVB. This leads to a more substantial tan and a happier “client.”

High output tanning beds now emit energies that are far higher than the sun’s. Of the one million people who tan, 70 percent are young females age 16-49.

Recently, researchers reviewed the literature on tanning beds with regard to three main areas: association with skin cancer, statements regarding health benefits, and current regulation. Taking a look at what they and others have found in these areas reminds us of the dangers associated with sunbed use and the need to educate patients effectively in order to combat their use.

Known Risks
The cutaneous risks associated with indoor tanning are well known. The association between skin cancer and artificial tanning are so strong that the World Health Organization has even issued statements against indoor tanning, specifically for those under age 18. Research confirms a link between use of tanning devices and risk of developing SCC (odds ratio 2.5) or BCC (odds ratio 1.5), even when accounting for other contributing factors such as history of sunburns, sunbathing, etc.

Furthermore, evidence links sunlamp use with development of melanoma. A meta-analysis of 10 studies identifying an association between sunbed use and melanoma risk estimated an odds ratio of 1.25 for development of melanoma among those who ever used a sunbed. The authors confirmed a “significantly increased risk of cutaneous melanoma subsequent to sunbed/sunlamp exposure.”

The Allure of Indoor Tanning
An estimated 30 million people use indoor tanning salons in the US. Of those, 2.3 million are adolescents.

According to one analysis of data from the National Longitudinal Study of Adolescent Health, nearly 37 percent of white female adolescents and just over 11 percent of white male adolescents have used a tanning booth at least once. More troubling is that 28 percent of females and almost seven percent of males reported using tanning booths three or more times.

The allure of tanning beds for patients may reflect the persistence of the myth of the “healthy tan.” Anyone who doubts that tan skin is “in” need only observe the sheer volume of bronzing creams or self-tanners now marketed. While these are a safer alternative to UV exposure, the fact remains that for some, tan equals beautiful.

Indoor tanning may be a learned behavior, with data suggesting that parents who use tanning beds may influence their children to do the same. A study of individuals ages 11 to 18 found that having a parent who used a sunlamp within the past year was an independent predictor for adolescent sunbed use. Additional independent predictors of adolescent sunbed use included failure to use sunscreen SPF 15 or higher at the beach or pool and low sun sensitivity.

Perhaps most troubling is the fact that among those whose parents had used a sunbed within the past year, 30 percent of youths had also used one.

Some patients visit tanning salons in hopes of acquiring a pre-vacation “base tan” that they believe will protect against or minimize burning from sun exposure. The pre-vacation tan is a fallacy. Not only does this tanning lead to excessive radiation, it also leads to...
decreased use of sun protection methods by individuals, as they believe their pre-tan is protective. Tanning largely with UVA yields no epidermal thickening and allows for a photoprotection equivalent to a SPF of 3.

Finally, due to tanning industry marketing, some patients may actually be using indoor tanning for its alleged health benefits. Levine et al note that, though the tanning industry increasingly urges consumers to tan in order to ensure adequate vitamin D levels, artificial tanning is neither a safe nor necessary way to increase systemic vitamin D levels. Data do not support an “epidemic” of vitamin D deficiency in the general population. Furthermore, the average individual will synthesize adequate levels of vitamin D through environmental UVR exposure associated with typical daily activities, such as walking to the car, driving, waiting for a bus, etc. This is the case even for those wearing sunscreen, as some UVR still reaches the skin.

A study determined that exposing the hands and face of infants for 0.5 to 2.0 hours of sun exposure per week was sufficient for adequate vitamin D synthesis. A survey of patients with xeroderma pigmentosum who adhered to strict sun protection strategies and a study of sun protection use by normal adults in Australia both failed to show vitamin D deficiency associated with sun protection. Finally, dietary sources are sufficiently sufficient to supplement low levels of vitamin D.

It’s worth noting that epidemiological data have suggested a potential inverse relationship between UV exposure and several malignancies including colon, breast, and prostate. Vitamin D photosynthesis has been proposed to account for these potential associations, and in vitro experimental evidence has suggested a potential association. Most of these studies are, however, confounded by a variety of statistical problems; they are observational and therefore cannot establish any firm relationship between exposure, malignancy, and vitamin D levels. Ultimately only randomized clinical trials using relevant patients will allow for an answer to these questions.

Various salons attribute additional “health benefits” to tanning, including increased metabolism and improved mood. Others note that light is used to treat diseases such as psoriasis and acne but stop short of actually claiming sunbed use will treat these.

**Regulation and Education**

In light of the popularity of indoor tanning as well as the known risks and side effects, several states have implemented youth access restrictions, parental consent, and informed consent to varying degrees of success. Youth access regulations seem to show the greatest promise for influencing behaviors and preventing adolescents from tanning indoors. In one survey, operators in 62 percent of salons with regulations limiting access to customers under age 12 said that they would enforce the restriction, while 77 percent of salons would prohibited access to those under age 15 in a state where that was the legal limit. By comparison, only 18 percent of facilities in a state with no restrictions would prohibit a 12-year old from tanning. Findings suggest some benefit for youth access restrictions, though there is no national standard. As evidence of the need for age restrictions, consider that in an earlier electronic survey of indoor tanning operators, the youngest reported age of patrons who tanned ranged from five to 21.

Last month, Hurd et al published a study intending to establish whether telephone assessment of salon compliance was a reliable method (it appears to be comparable to face-to-face compliance). Their results showed compliance with limitations on tanning sessions per week was low (25.5 percent by phone and 17.5 percent face-to-face). Compliance with parental consent requirements was higher (71.3 percent by phone; 76.3 percent face-to-face).

Informed consent requirements and subsequently customer education varies nationally, with differences from state-to-state and even salon-to-salon within states. In a four state survey of customer information practices, fewer than half of salon operators in three states warned patients of skin cancer risks, and only a slightly higher percentage of respondents in three states warned of premature aging. Close to 90 percent of respondents did, however, warn of sunburning risks.

Levine et al note a paucity of regulation nationwide and variability within existing regulations, leading them to urge health care providers to increase efforts to warn and educate the public as well as the government about the dangers of UV exposure, particularly purposeful exposure via indoor tanning lamps. Dermatologists, as experts in treatment of the skin, must be at the forefront of such efforts.

**What to Do**

Knowing that indoor tanning remains popular and may actually be increasing among patients, particularly adolescents, dermatologists must expand their sun safety message to include both natural and unnatural forms of UVR. Emphasize the need to minimize sun exposure, rather than suggest an unrealistic need to avoid the sun at all costs. Finally, when patients report (or you suspect) a history of sunbed use, it may be worth the clinician’s time to state clearly to patients that:

1. Tanning is associated with skin cancer risks as well as premature aging.
2. Tanning is not necessary for general health and is, in fact, detrimental to overall health.

3. Sun avoidance is not associated with any detrimental health effects.

4. Scientific evidence shows there is no benefit to a “pre-tan” or “base-tan.”

5. Simply because a salon is licensed or “registered” does not mean that tanning is “safe.”

6. Lack of restrictions on tanning does not mean that tanning is safe or appropriate.

When presented with the opportunity, educate parents as well as youths in hopes that both will adopt healthier habits and perhaps positively influence each other.

References: