The Characterization of Indoor Tanning Facilities in Florida

Commercial tanning beds have been available for cosmetic use for many decades, and current estimates suggest that 1 million people use tanning beds daily despite their placement in the highest cancer risk category and use being restricted in many states. Indoor tanning is linked to melanoma and nonmelanoma skin cancer development, especially with use before age 35 years. Interestingly, use by teenage girls is as high as 40%, and overall, 20% of 18- to 29-year-old individuals have indoor tanned in the last year. Because indoor tanning use is associated with increased morbidity and mortality, the availability of devices to certain demographics may have significant public health consequences. Classification of providing facilities may facilitate more directed health or regulatory interventions.

Methods | The requirement for institutional review board approval was waived by the University of Miami Miller School of Medicine. Information regarding registered tanning facilities was obtained from the Florida Department of Health including business name, telephone number, and zip code. Further information on the facility type and the services offered was abstracted from the internet and direct contact with facilities.

The facilities were categorized by the services offered and were assigned to the following groups: tanning only, beauty, hair, nail services, fitness facilities, residential facilities, spa, wellness, massage services, and other. Residential facilities were assessed for whether the tanning services were unlimited and complimentary to residents.

Results | In October 2012, 1261 facilities were licensed indoor tanning facilities by the Florida Department of Health. Table 1 gives the numbers of indoor tanning facilities by type. There is 1 tanning salon per 15 113 people and 1.16 tanning facilities per every 50 square miles (129.5 km²). For comparison, numbers of other types of prevalent, frequently visited businesses within the state of Florida were tabulated (Table 2).

Discussion | Recently, availability of indoor tanning facilities has drastically increased, and this business has become one of the fastest growing industries. Despite tanning bed exposure being labeled as “carcinogenic to humans,” increasing use by adolescents is a concern. The prevalence of indoor tanning likely varies by sex, age demographic, social influences, attitudes, and the proximity of tanning facilities to schools and homes. The prevalence of indoor tanning facilities in Florida compared with commonly frequented businesses in our study has alarming implications.

Florida has the second highest incidence of melanoma in the country and does not restrict tanning device use by age. The link between indoor tanning use and skin cancer development has strengthened. Melanoma is the most lethal skin cancer, and its incidence in young women and girls has recently more than doubled. Our group previously reported geographic clustering of late-stage melanoma cases in Miami Dade County, and whether a causal relationship exists may warrant further evaluation and stringent regulation.

Interestingly, this study uncovered many indoor tanning facilities operating within residential facilities in Florida marketing services to university students, offering use of tanning devices with residence. Of the 94 residential locations providing indoor tanning services in Florida, 88 (94%) provide complimentary tanning with residence, only limiting use to once daily. Because the targeted demographic is at particular risk for subsequent skin cancer development, the implications are substantial. Moreover, many Florida tanning facilities are located at fitness centers and businesses marketing “wellness” services. The association of indoor tanning with these amenities falsely implies that indoor tanning promotes health rather than carcinogenic effects.

Further investigation of the impact of indoor tanning facility type, geographic location, and use on skin cancer incidence may promote regulation of these carcinogenic devices and guide health interventions. Moreover, efforts to restrict false advertising and complimentary indoor tanning may be warranted.

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Table 1. Indoor Tanning Facility by Type

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>No. (%)</th>
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<tbody>
<tr>
<td>Tanning only</td>
<td>498 (39.5)</td>
</tr>
<tr>
<td>Beauty/hair/nail</td>
<td>288 (22.8)</td>
</tr>
<tr>
<td>Fitness</td>
<td>274 (21.7)</td>
</tr>
<tr>
<td>Residential</td>
<td>94 (7.5)</td>
</tr>
<tr>
<td>Spa/wellness/massage</td>
<td>86 (6.8)</td>
</tr>
<tr>
<td>Other</td>
<td>21 (1.7)</td>
</tr>
<tr>
<td>Total</td>
<td>1261 (100)</td>
</tr>
</tbody>
</table>

Table 2. Comparative Numbers of Prevalent Florida Businesses

<table>
<thead>
<tr>
<th>Business</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor tanning facilities</td>
<td>1261</td>
</tr>
<tr>
<td>Bank of America branches</td>
<td>624</td>
</tr>
<tr>
<td>Bank of America ATMs</td>
<td>1455</td>
</tr>
<tr>
<td>McDonald’s</td>
<td>868</td>
</tr>
<tr>
<td>CVS</td>
<td>693</td>
</tr>
<tr>
<td>Publix Supermarket</td>
<td>756</td>
</tr>
</tbody>
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Abbreviation: ATM, automated teller machine.
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Author Contributions: Drs Kirsner and Lamel had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Lamel, Vivas, Kirsner.

Acquisition of data: Lamel, Richmond.

Analysis and interpretation of data: Lamel, Richmond, Braun, Kirsner.

Drafting of the manuscript: Lamel, Richmond.

Critical revision of the manuscript for important intellectual content: Lamel, Richmond, Braun, Vivas, Kirsner.

Administrative, technical, or material support: Richmond.

Study supervision: Kirsner.

Conflict of Interest Disclosures: Dr Kirsner has served as a consultant to Organogenesis, Healthpoint, KCI, Keraplast, Shire, and Molnlycke.

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OBSERVATION

A Case of Refractory Sézary Syndrome With Large-Cell Transformation Responsive to Brentuximab Vedotin

Brentuximab vedotin is a CD30-directed antibody/drug conjugate recently approved for the treatment of relapsed Hodgkin lymphoma (HL) and systemic anaplastic large-cell lymphoma (ALCL). Given that CD30 is variably expressed in mycosis fungoides (MF) and Sézary syndrome (SS), brentuximab vedotin is a promising treatment option for these cutaneous neoplasms. Initial studies have confirmed its clinical activity in refractory cases.

Report of a Case | An 85-year-old white woman with early dementia presented with 6 months of fatigue, weight loss, and diffuse pruritic violaceous patches and plaques (Figure 1A). Findings from lymph node examination were unremarkable. Biopsies of a patch and plaque on the back revealed a dense bandlike infiltrate of atypical lymphocytes in the dermis with large and irregular forms (Figure 2A). Atypical lymphocytes extended into the epidermis arranged along the dermal-epidermal junction and within the Pautrier microabscesses (Figure 2B). Immunohistochemical staining characterized the lymphocytic population as CD3+ T-lymphocytes with a predominance of CD4+ over CD8+ cells. Expression of CD7 was decreased. Loose aggregates of enlarged dermal lymphocytes, making up approximately 25% of the lymphoid infiltrate, showed CD30 positivity (Figure 2C). Anaplastic lymphoma kinase staining was negative. A complete blood cell count was within normal limits. The lactate dehydrogenase level was normal at 522 U/L. Peripheral flow cytometry revealed immunophenotypically abnormal CD4+ T-cells with reduced CD2 and CD3 expres-

Figure 1. Clinical Images of the Patient

A, Photograph of the patient at initial presentation. B, Rapid progression seen 6 months later despite multiple therapies. C, Rapid clearance of tumors and improvement of pruritus 10 months later after 5 treatment cycles of brentuximab vedotin.