Warning Signs Observed in Tanning Salons in New York City: Implications for Skin Cancer Prevention

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Abstract

Use of artificial tanning may be contributing to the increased incidence of skin cancer. Federal law requires warning signs to inform consumers about health risks. All of the tanning facilities in New York City were assessed for compliance with this law during April and May 2010. More than one-third of the 224 tanning machines observed in 47 of the 85 facilities visited did not have any warning signs posted, and signs were difficult to see in many others.

Objective

Skin cancer is the most common form of cancer in the United States, and rates of melanoma, the most dangerous form, are increasing (1). A main cause of skin cancer is ultraviolet radiation. Despite the known relationship between use of tanning machines and risk of basal and squamous cell carcinomas and melanoma (2) and that radiation from “tanning beds” has been deemed a carcinogen (3), use of indoor tanning has increased (4) and may be contributing to increased incidence of skin cancer. Several studies suggest that young girls (5) and adolescents (5) are most likely to engage in tanning, but high rates of tanning have been found in adults (6). Given that ultraviolet radiation is a known carcinogen (7), a clearly visible warning sign on each tanning machine is required by the US Food and Drug Administration (8) (Box). The warning is intended to alert the potential user about the danger of overexposure to ultraviolet radiation, of not using protective eyewear, and potential adverse interactions with certain cosmetics and medications.

Research on compliance with various indoor tanning regulations is limited, but studies suggest low compliance with posting the regulations (9-11). This noncompliance may impede informed decision making by consumers and pose a threat to public health. This study was conducted to estimate the prevalence of warnings in all of the tanning facilities in New York City.

Methods

In this cross-sectional study, we compiled telephone numbers and addresses from Yellow Pages (for Bronx, Brooklyn, Manhattan, Staten Island, and Queens) and 3 online address sites (Google, Yahoo Local, and Switchboard.com) to determine the number of tanning facilities in New York City, which yielded 183 sites. Of these, telephone outreach identified 85 (46%) tanning facilities. The remaining sites had disconnected telephone numbers or were businesses that did not offer tanning (93 [51%]); 3 (2%) sites offered only spray tanning, and 2 (1%) offered only gel tanning. This process was repeated by a second coder who confirmed that there were 183 tanning facilities listed in New York City.

The observer visited each of the 85 facilities and asked to view the machines that were not occupied by customers. The number viewed at each site varied depending on the...
were found at several facilities studied, and those devices they were beds or stand-up models. Spray tanning devices were considered, regardless of whether a warning sign posted on each machine observed (Table). All of the tanning machines and the presence and visibility of a warning sign were observed during direct examinations by the person being exposed immediately before the use of the product.

21 CFR 1040.20(d)(1)(ii). The regulation does not specify requirements for the format in which these words must appear, or the exact location on the product that the warning label must appear, as long as it is “permanently affixed or inscribed on an exterior surface of the product when fully assembled for use so as to be legible and readily accessible to view by the person being exposed immediately before the use of the product.”

FDA also issued a letter dated June 25, 1985, regarding the warning label to sunlamp product manufacturers outlining FDA policy. The policy letter states:

The intended purpose of the warning label required on sunlamp products is to provide that information necessary for the consumer to make an informed decision regarding the risks of using sunlamp products and to provide adequate directions for skin tanning. Therefore, the label must be legible and conspicuously placed on the product so as to render it likely to be read by the user under normal conditions of purchase and use.

Note: The terms “sunlamp products” and “indoor tanning devices” have the same meaning.

Source: FDA (8).

Discussion

This study was limited by the cross-sectional design, by having only 1 researcher conducting observations and recording data, and by uncertainty about the representativeness of the machines observed. Generalizability of the findings is restricted to New York City. Nevertheless, the findings begin to fill a gap in knowledge regarding compliance with required warnings on tanning machines. No studies were identified that used systematic direct observations of tanning machines to assess the presence and visibility of warnings. One study, conducted more than a decade ago, assessed warnings and other criteria via observation or query of a clerk but did not specify the number of tanning machines observed to measure the presence of warning signs (12).

This study suggests that compliance with federal regulations is low for warning signs on indoor tanning machines in New York City. Research is needed to verify this finding and to assess generalizability to other localities. Warning signs are not sufficient to change consumer behavior (13) but are necessary to help consumers make informed choices about indoor tanning. Regulations requiring post-
ed warnings on tanning machines will not serve their intended purpose if compliance is low, which was found in this study.

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References

1. Cancer facts and figures 2009. Atlanta (GA): American Cancer Society; 2009.
2. International Agency for Research on Cancer Working Group on Artificial Ultraviolet (UV) Light and Skin Cancer. The association of use of sunbeds with cutaneous malignant melanoma and other skin cancers: a systematic review [published correction appears in Int J Cancer 2007;120(11):2526]. Int J Cancer 2007;120(5):1116-22.
3. Solar and ultraviolet radiation: summary of data reported and evaluation. Vol 55. Lyon (FR): World Health Organization, International Agency for Research on Cancer; 1992.
4. Schulman JM, Fisher DE. Indoor ultraviolet tanning and skin cancer: health risks and opportunities. Curr Opin Oncol 2009;21(2):144-9.
5. Geller AC, Colditz G, Oliveria S, Emmons K, Jorgensen C, Aweh GN, Frazier AL. Use of sunscreen, sunburning rates, and tanning bed use among more than 10,000 US children and adolescents. Pediatrics 2002;109(6):1009-14.
6. Heckman CJ, Coups EJ, Manne SL. Prevalence and correlates of indoor tanning among US adults. J Am Acad Dermatol 2008;58(5):769-80.
7. United States Department of Health and Human Services. Report on carcinogens, eleventh edition. http://ntp.niehs.nih.gov/ntp/roc/eleventh/profiles/s183uvrr.pdf. Accessed June 10, 2010.
8. US Department of Health and Human Services, Food and Drug Administration. Report to Congress: labeling information on the relationship between the use of indoor tanning devices and development of skin cancer or other skin damage. http://www.fda.gov/downloads/MedicalDevices/DeviceRegulationandGuidance/Overview/MedicalDeviceUserFeeandModernizationActMDUFMA/ucm109296.pdf. Accessed June 19, 2010.
9. Heilig LF, D’Ambrosia R, Drake AL, Dellavalle RP, Hester EJ. A case for informed consent? Indoor UV tanning facility operator’s provision of health risks information (United States). Cancer Causes Control 2005;16(5):557-60.
10. Mayer JA, Hoerster KD, Pichon LC, Rubio DA, Woodruff SI, Forster JL. Enforcement of state indoor tanning laws in the United States. Prev Chronic Dis 2008;5(4). http://www.cdc.gov/pcd/issues/2008/oct/07_0194.htm. Accessed May 19, 2010.
11. Hester EJ, Heilig LF, D’Ambrosia R, Drake AL, Schilling LM, Dellavalle RP. Compliance with youth access regulations for indoor UV tanning. Arch Dermatol 2005;141(8):959-62.
12. Culley CA, Mayer JA, Eckhardt L, Busic AJ, Eichenfield LF, Sallis JF, et al. Compliance with federal and state legislation by indoor tanning facilities in San Diego. J Am Acad Dermatol 2001;44(1):53-60.
13. Hillhouse J, Turrisi R. Skin cancer risk behaviors. Arch Dermatol 2005;141(8):1028-31.
Table

| Category               | Characteristics                                                                                                                                 |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Not at all visible     | No warning sticker or present only in a foreign language.                                                                                         |
| Barely visible         | Warning was present but not very visible because it was placed on the back of a machine, had worn-off print, was only a remnant, or used type of a size and color that made visibility very difficult. |
| Moderately visible     | Difficult to locate the sticker because of odd placement, often on the groove of a stand-up machine between the machine and the door; in bed machines, the sticker was in obscure places on the inside. In all cases, the type was small, making visibility difficult. |
| Clearly visible        | Warning was easier to find, often on the top of a bed machine or on the side of a stand-up machine; the type was easily readable in size, but the text still required effort to read. |
| Completely visible     | Warning was “up front and center.” A user would notice it without having to look. On stand-up machines, these would have been affixed to the door and were in large, dark type. On bed machines, these were typically above the latch used to close the machine and were also in large, dark type. |