



Adolescents and Indoor Tanning

The incidence of melanoma in the United States is increasing rapidly in children and young adults.^{1,2} Melanoma is now the second most common form of cancer for individuals aged 15-29 years and the most common form of cancer for young adults aged 25-29 years.³

The Facts

Exposure to UV radiation through sunlight or tanning beds, is the primary risk factor for skin cancer.⁴ Usually appearing in adulthood, skin cancer is often caused by UV exposure and sunburns that began as early as childhood.⁵

- Adolescents, or individuals under the age of 18, are particularly at risk to the damages associated with UV radiation and overexposure as their skin is not fully developed⁶ and their skin cells are dividing and changing more rapidly than those of adults.⁷
- Indoor tanning use before the age of 35 years increases melanoma risk by 75%.⁸
- The risk of developing melanoma increases with the number of sunburns an individual receives throughout all periods of life.⁹
- Using a tanning bed, even once, increases the risk for squamous cell carcinoma by 67% and basal cell carcinoma by 29%. The risk is higher when the tanning bed use begins before age 25.¹⁰
- Multiple studies demonstrate that indoor tanners receive sunburns or suffer other skin damage after indoor tanning sessions.^{11,12,13}

Over the last 20 years, the number of teens and young adults reporting use of tanning beds increased from 1% to 27%.²²

In 2009, the International Agency for Research on Cancer (IARC) increased the classification of UV-emitting indoor tanning devices to the highest level of cancer risk – Group 1 – “carcinogenic to humans.”¹⁴ This classification places tanning devices in the same category as other known carcinogens such as tobacco, benzene, asbestos, and many other substances. However, despite the risk, adolescents continue to tan indoors.

Tanning Bed Use Among Adolescents

- Of the 30 million individuals who tan indoors every year, 2.3 million are adolescents.¹⁵
- Results from the 2011 Youth Risk Behavior Survey (YRBS) demonstrate that 13.3% of high school students had used an indoor tanning device, such as a sunlamp, sunbed or tanning booth one or more times during the 12 months before the survey.¹⁶
- The 2011 YRBS also revealed that indoor tanning incidence was significantly higher in female adolescents (20.9%) than in their male counterparts (6.2%).¹⁷
- In a 2011 nationwide survey by the American Academy of Dermatology, a vast majority (86%) of adolescent and young adult respondents who tan indoors reported knowing that tanning bed usage is associated with skin cancer — yet still report having used an indoor tanning bed in the last year.¹⁸

Adolescents aged 16-17 were twice as likely to tan indoors as adolescents aged 14-15.²⁰

Certain factors, many of which can be addressed with educational and policy-level interventions, are associated with a significantly higher prevalence of indoor tanning among adolescents. A 2011 study published in the American Journal of Public Health (AJPH), focused on adolescents aged 14-17 living in the 100 largest US cities revealed several factors were significantly associated with increased indoor tanning behavior among adolescents. Adolescents were much more likely to tan indoors if they¹⁹:

- Believed people with a tan look more attractive (80% more likely)
- Felt that their parents allowed them to use indoor tanning (80% more likely)
- Had a parent who used indoor tanning (70% more likely)
- Noticed advertisements for indoor tanning (70% more likely)
- Had a parent who believed people with a tan are more attractive (50% more likely)
- Lived within two miles of at least one indoor tanning facility (40% more likely)

Addressing the Problem

According to the 2011 AJPH study, adolescents were less likely to tan indoors if their state had a law addressing minors' access to tanning facilities.²¹

Two states, California (SB 746 -2011) and Vermont (H 157 – 2011), have passed legislation banning tanning bed usage for minors under the age of 18. Several other states have introduced, or are in the process of introducing, similar measures, and almost 33 states currently regulate the use of tanning facilities by adolescents.

Several national and international organizations have issued reports on the adverse health effects associated with indoor tanning devices, with most recommending the introduction of indoor tanning bans for minors under the age of 18. These organizations include the American Cancer Society, the World Health Organization (WHO), the International Commission of Non-ionizing Radiation Protection, the Centers for Disease Control and Prevention (CDC), the National Toxicology Program (US), the National Radiological Protection Board (UK), the National Health and Medical Research Council (Australia), and EUROSIN.

¹ Lange, J, et al. (2007). "Melanoma in Children and Teenagers: An Analysis of Patients from the National Cancer Database." *Journal of Clinical Oncology*, April 2007; 25:11.

² Weir, et al. (2011) "Melanoma in adolescents and young adults (ages 15-39 years): United States, 1999-2006." *Journal of the American Academy of Dermatology*. November 2011; 65:S38-S49.

³ *Cancer Epidemiology in Older Adolescents & Young Adults. SEER AYA Monograph Pages 53-57. 2007.*

⁴ Hoerster, et al. (2007). "The Influence of Parents and Peers on Adolescent Indoor Tanning Behavior: Findings from a Multi-City Sample." *Journal of the American Academy of Dermatology*; December 2007, 57:6

⁵ National Institutes of Health – US National Library of Medicine. (2011). "Sunburn: Medline-Plus Medical Encyclopedia." Accessed on June 12, 2012 at <http://www.nlm.nih.gov/medlineplus/ency/article/003227.htm>

⁶ Yoo, Jeong-Ju and Kim, Hye-Young. (2012). "Adolescent's body-tanning behaviours: Influences of gender, body mass index, sociocultural attitudes towards appearance and body satisfaction." *International Journal of Consumer Studies*; 2012; 26:360-366.

⁷ Skin Cancer Foundation. (2012). "Quick Facts About Teen Tanning." Accessed on June 8, 2012 at <http://www.skincancer.org/prevention/tanning/quick-facts-about-teen-tanning>

⁸ Mayer, et al. (2011). "Adolescent's Use of Indoor Tanning: A Large-Scale Evaluation of Psychosocial, Environmental, and Policy-Level Correlates." *American Journal of Public Health*. May 2011; 101:5.

⁹ Dennis, L., et al. (2008). "Sunburns and risk of cutaneous melanoma, does age matter: A comprehensive meta-analysis." *Annals of Epidemiology*, August 2008; 18:8.

¹⁰ Wehner, et al. (2012). "Indoor Tanning and non-melanoma skin cancer: systematic review and meta-analysis." *British Medical Journal*. October 2012.

¹¹ Cokkinides V, et al (2009). "Indoor tanning use among adolescents in the US, 1998 to 2004". *Cancer* 2009;115:190-8.

¹² Boldeman C, et al. (1996). "Sunbed use in relation to phenotype, erythema, sunscreen use and skin diseases. A questionnaire survey among Swedish adolescents." *Journal of Dermatology* 1996;135:712-6.

¹³ Boldeman C, et al. (2001). "Tanning habits and sunburn in a Swedish population age 13-50 years". *European Journal of Cancer* 2001;37:2441-8.

¹⁴ Ghissassi, et al. (2009). "A Review of Human Carcinogens – Part D: Radiation." *The Lancet – Oncology*; August 2009, Vol 10.

¹⁵ Levine, JA, Sorace, M., Spencer, J., et al (2005). "The indoor UV tanning industry: A review of skin cancer risk, health benefit claims, and regulation." *Journal of the American Academy of Dermatology*; 2005, 53: 1038-1044.

¹⁶ Centers for Disease Control and Prevention. (2012) "Youth Risk Behavior Surveillance – United States, 2011". *MMWR* 2012;61:4

¹⁷ Centers for Disease Control and Prevention. (2012) "Youth Risk Behavior Surveillance – United States, 2011". *MMWR* 2012;61:4

¹⁸ American Academy of Dermatology. (2011). "New survey finds tanning salons are not warning teens and young women about the dangers of tanning beds." Accessed on June 8, 2012 at <http://www.aad.org/stories-and-news/news-releases/new-survey-finds-tanning-salons-are-not-warning-teens-and-young-women-about-the-dangers-of-tanning-beds>

¹⁹ Mayer, et al. (2011). "Adolescent's Use of Indoor-Tanning: A Large-Scale Evaluation of Psychosocial, Environmental, and Policy-Level Correlates." *American Journal of Public Health*, May 2011; 101:5.

²⁰ Hoerster, BA, et al. (2007). "The Influence of Parents and Peers on Adolescent Indoor Tanning Behavior: Findings from a Multi-City Sample." *Journal of the American Academy of Dermatology*, December 2007; 57:6.

²¹ Mayer, et al. (2011). "Adolescent's Use of Indoor-Tanning: A Large-Scale Evaluation of Psychosocial, Environmental, and Policy-Level Correlates." *American Journal of Public Health*, May 2011; 101:5

²² Robinson, JK., et al. (2008). "Indoor Tanning Knowledge, Attitudes, and Beliefs Among Young Adults from 1988-2007." *Archives of Dermatology*, 2008; 144:4.



Indoor Tanning Policy Position

American Cancer Society Cancer Action Network Position Statement

The American Cancer Society (ACS) is the nationwide community-based voluntary health organization dedicated to eliminating cancer as a major health problem by preventing cancer, saving lives and diminishing suffering from cancer, through research, education, advocacy, and service. The American Cancer Society set ambitious goals for significantly reducing the rates of cancer incidence and mortality along with dramatically improving the quality of life for all people with cancer. In line with these goals, the American Cancer Society Cancer Action Network (ACS CAN), the advocacy affiliate of ACS, advocates for public policies that will help reduce the risk of skin cancer associated with the use of indoor tanning devices.

Suntanning Facility Use during Teen Years and Twenties and Skin Cancer Risk

Skin cancer is the most common type of cancer in the United States, with melanoma as one of the most common cancers diagnosed among young adults. Ultraviolet (UV) radiation exposure from the sun is a known cause of skin cancer, and UV radiation exposure during childhood and adolescence increases the risk factor for a skin cancer diagnosis as an adult. A meta-analysis published in the *International Journal of Cancer* found an increase in the risk for melanoma in people who first used suntanning facilities in their teen years and twenties¹. The study was a review of 19 informative studies. It concluded that use of suntanning facilities before the age of 35 increases the risk for melanoma by 75 percent. The authors strongly suggested restrictions on the use of suntanning facilities by minors. Largely based on the findings of that meta-analysis, in the summer of 2009, the International Agency for Research on Cancer raised the classification of UV-emitting indoor tanning devices, or suntanning facilities, to the highest level of cancer risk – Group 1 – “carcinogenic to humans².”

The World Health Organization, the International Commission of Non-ionizing Radiation Protection, the National Toxicology Program (US), the National Radiological Protection Board (UK), the National Health and Medical Research Council (Australia) and EUROSKIN have all issued reports on the adverse health effects of the use of suntanning facilities and have recommended that minors under the age of 18 not use them³.

American Cancer Society Cancer Action Network Position Statement on Suntanning Facilities

ACS CAN supports legislative and regulatory initiatives at all levels of government to protect the public from increased skin cancer risk associated with exposure to ultraviolet radiation emitted by suntanning facilities. More specifically, based on a review of the best science currently available, ACS CAN supports initiatives that would prohibit minors’ use of suntanning facilities due to an increased risk for skin cancer, ensure tanning salons are properly regulated, that effective enforcement provisions are in place and that all consumers are properly informed about the risk of using indoor tanning devices prior to use.

March 2010

¹ The International Agency for Research on Cancer Working Group. The association of use of sunbeds with cutaneous malignant melanoma and other skin cancers: A systematic review. *International Journal of Cancer*. 2006. <http://dx.doi.org/10.1002/ijc.22453>

² Fatiha El Ghissassi, Robert Baan, Kurt Straif, Yann Grosse Beatrice Secretan, Veronique Bouvard, Lamia Benbrahim-Tallaa, Neela Guha, Crystal Freeman, Laurent Galichet, Vincent Coglianò and on behalf of the WHO International Agency for Research on Cancer Monograph Workgroup. A review of human carcinogens – Part D: radiation. *The Lancet Oncology*. 2009; 10(8): 751-752.

³ WHO (2003). *Artificial tanning sunbeds – risks and guidance*, Geneva, World Health Organization. ICNIRP (2004). Guidelines on limits of exposure to ultraviolet radiation of wavelengths between 180 nm and 400 nm (incoherent optical radiation). *Health Physics*, 87; 171-186. National Toxicology Program (2002). Report on Carcinogens, 10th Edition, Substances Profiles, National Toxicology Program, Research Triangle Park, NC. National Radiation Protection Board (NRPD) (2002). *Statement by the advisory group on non-ionizing radiation, use of sunbed and cosmetic tanning*. In: *Health Effects from Ultraviolet Radiation*, 13: 279-282. Australian Cancer Network Melanoma Guidelines Revision Working Party. Clinical Practice Guidelines for the Management of Melanoma in Australia and New Zealand. Cancer Council Australia and Australian Cancer Network, Sydney and New Zealand Guidelines Group, Wellington (2008). EUROSkin. WHO Workshop. Recommendations on Sunbeds (May 2000), Hamburg, Germany. <http://www.euroskin.eu/downloads/sunbedseuroskin.pdf>



Common Misconceptions about Tanning Bed Use

Debunking the Industry's Myths

Indoor Tanning Industry: *"The relationship between UV radiation and skin cancer is not straight-forward and questions still exist as to how UV radiation interacts with the skin."*

Fact: Significant amounts of research link UV radiation to an increased risk for skin cancer. The International Agency for Research on Cancer (IARC) reaffirmed the carcinogenicity of UV radiation by examining 19 separate informative studies, all of which documented that using a sunbed, even once, was positively associated with melanoma.¹ Similar studies have shown increased risk for other skin cancers (basal and squamous cell carcinomas) that resulted from using an indoor tanning bed as little as one time.²

Several other major studies further document the link between artificial UV tanning and melanoma, including a survey and two case-control studies in the U.S., a case-control study in Australia, the prospective US Nurse's Health Study, and the confirmation of previous results of the Norwegian-Swedish cohort study.

Indoor Tanning Industry: *"While associative survey-studies suggest a correlation between UV radiation from indoor tanning and melanoma, no direct experimental evidence exists to show a causative connection. Even American Academy of Dermatology spokesperson Dr. James Spencer admits, "We don't have direct experimental evidence" connecting indoor tanning and melanoma."*

Fact: Simply, it is unethical to knowingly expose human subjects to identified carcinogens, such as UV radiation, even for the purpose of obtaining direct experimental evidence. As such, many studies seeking information on the effects of exposures to known harms use a case-control design.

A case-control design compares two groups of people: those with the disease or condition under study (cases) and a very similar group of people who do not have the disease or condition (controls).

Researchers then study the medical and lifestyle histories of the people in each group to learn what factors may be associated with the disease or condition.³ Therefore, in a hypothetical case-control study designed to examine the effects of artificial UV radiation on human subjects, 'cases' would be individuals who tan indoors while 'controls' would be similar individuals who do not.

Case-control studies that use large sample sizes and attempt to control for a wide-range of variables are among the strongest and most reputable. The studies most frequently cited to demonstrate the association between indoor tanning and the development of melanoma use sample sizes up to 100,000 people or more. These studies all demonstrate a causative effect of UV radiation on the development of skin cancer.

In order to further examine the effects of known harms, researchers frequently substitute animals, such as mice, for human subjects. These studies are organized experiments, producing results in a controlled

¹ Ghissassi, et al. (2009). "A Review of Human Carcinogens – Part D: Radiation." *The Lancet – Oncology*; August 2009, Vol 10.

² Wehner, et al. (2012). "Indoor Tanning and non-melanoma skin cancer: systematic review and meta-analysis." *British Medical Journal*. October 2012

³ National Cancer Institute. (2012) "Definition of case-control study." Accessed on June 11, 2012 at <http://www.cancer.gov/dictionary?cdrid=348989>

environment in which variables are limited. Under this format, multiple studies on animals demonstrate the association between artificial UV radiation and the documented harms related to UV exposure, specifically skin cancer and immunosuppression and pre-mature aging of the skin.^{4,5,6,7}

Indoor Tanning Industry: *“Professional indoor tanning facilities are regulated and educate their patrons about the potential risks of UV overexposure. Consumers are required to read and sign consent forms that include warnings about potential eye damage, photoaging and skin cancer.-Warning labels are found on every tanning device and almost always in other general areas. Professional tanning facilities require parental consent for teenagers who tan even though most states don’t require this measure.”*

Fact: Although research on compliance with various indoor tanning regulations is limited, several studies suggest low compliance with posting regulations and appropriate warning labels.^{8,9,10} For instance, in 2010, researchers in New York City assessing tanning facilities for compliance with state and federal regulations found that more than one-third, or 35%, of tanning machines observed did not have any warning signs posted.¹¹ One year prior, in 2009, a large telephone survey of 3,647 indoor tanning facilities in 116 U.S. cities revealed that, only 11% of all tanning establishments followed the Food and Drug Administration’s recommendation that first-time tanners limit their exposure to three tanning sessions in the first week. In the same study, an alarming 71% of facilities told the undercover callers, who posed as fair-skinned, 15-year-old girls, they could tan seven days a week. Additionally, larger tanning facilities, or those with a greater number of tanning beds, are significantly less likely to follow the FDA frequency recommendations.¹²

In an informal study by the US House of Representatives Committee on Energy and Commerce – Minority Staff, investigators employed methods similar to the 2009 study to determine level of compliance and informative transparency. Of the 300 facilities, 90% stated that indoor tanning did not pose a health risk, 51% denied indoor tanning would increase a fair-skinned teenager’s risk of developing skin cancer, and 78% claimed indoor tanning would actually be beneficial to the health of a fair-skinned teenager.¹³

⁴ Roberts, L. and Beasley, D. (1997). “Sunscreen Lotions Prevent Ultraviolet Radiation-Induced Suppression of Antitumor Immune Responses.” *International Journal of Cancer*, 1997; 71

⁵ Beasley, DG, et al. (1998). “Commercial sunscreen lotions prevent ultraviolet radiation-inducing depletion of Langerhans cells in Skh-1 and C3H mice.” *Photodermatology, Photoimmunology, and Photomedicine*, 1998; 14:3-4

⁶ Ananthaswamy, H, et al. (1999). “Inhibition of Solar Simulator-Induced p53 Mutations and Protection Against Skin Cancer Development in Mice by Sunscreens.” *Journal of Investigative Dermatology*, 1999; 112.

⁷ Fourtanier, A. (2000). “Improved Protection Against Solar-Simulated Radiation-Induced Immunosuppression by a Sunscreen with Enhanced Ultraviolet A Protection.” *Journal of Investigative Dermatology*, April 2000; 114:4.

⁸ Heilig, et al. (2005). “A case for informed consent? Indoor UV tanning facility operator’s provision of health risks information (United States).” *Cancer Causes Control*, 2005; 16:5.

⁹ Mayer, JA. (2008). “Enforcement of state indoor tanning laws in the United States.” *Preventing Chronic Disease*, 2008; 5:4.

¹⁰ Hester, EJ. (2005). “Compliance with federal and state legislation by indoor tanning facilities in San Diego.” *Journal of American Academy of Dermatology*, 2005; 141:8.

¹¹ Brouse, et al. (2011). “Warning Signs Observed in Tanning Salons in New York City: Implications for Skin Cancer Prevention.” *Preventing Chronic Disease*, 2011; 8:4.

¹² Pichon, L., et al. (2009). “Youth Access to Artificial UV Radiation Exposure.” *Archives of Dermatology*, Sept 2009; 145:9.

¹³ US House of Representatives Committee on Energy and Commerce – Minority Staff. (2012). “False and Misleading Health Information Provided to Teens by the Indoor Tanning Industry – Investigative Report Prepared for Rep. Henry A Waxman and Rep. Diana DeGette.” Accessed on June 12, 2012 at

<http://democrats.energycommerce.house.gov/sites/default/files/documents/Tanning%20Investigation%20Report%202.1.12.pdf>

Indoor Tanning Industry: *"Tanning beds are a safer alternative to sunbathing outdoors because most tanning beds can be controlled and moderated by skin type and operate on a timer or via the control of a tanning bed operator."*

Fact: Tanning beds deliver UVA radiation 5-15 times higher than what is delivered by the summer midday sun.¹⁴ Furthermore, multiple studies demonstrate that indoor tanners receive sunburns or suffer other skin damage after indoor tanning sessions.^{15,16,17}

Indoor Tanning Industry: *"Melanoma is more common in people who work indoors than in those who work outdoors, and those who work both indoors and outdoors get the fewest melanomas. Therefore, the relationship between melanoma and sunlight is not clear-cut. If it were, outside workers would have higher incidence of melanoma than those who work inside."*

Fact: According to the Centers for Disease Control and Prevention, different patterns of sun exposure are associated with different types of skin cancer.¹⁸ Continuous, chronic sun exposure, such as that observed among outdoor workers, is associated with squamous cell carcinoma.¹⁹ Intermittent exposure, such as recreational exposure such as that observed among indoor tanners, is associated with melanoma and basal cell carcinoma.^{20,21} Additionally, intermittent exposure is more likely to occur in concentrated bursts to skin that is more sun-sensitive, especially the stomach, chest, and back, than chronically sun-exposed skin.²² This is just one explanation as to why incidence of melanoma is higher among people who work indoors.

Sunburn has typically been used as one indicator of high intermittent exposure to UV radiation, the form of sun exposure most strongly related to melanoma risk.²³ Additionally, the risk of developing melanoma increases with the number of sunburns an individual receives during all life-periods²⁴, highlighting a cause for concern related to intermittent, concentrated UV exposure.

Indoor Tanning Industry: *"Indoor tanning supports the production of vitamin D which has a beneficial effect on human health. Furthermore, 77 percent of Americans are considered vitamin D deficient according to*

¹⁴ Dore, J-F and Chigno, M-C. (2012). "Tanning salons and cancer." *Photochemical and Photobiological Sciences*, 2012; 11:30.

¹⁵ Cokkinides V, et al (2009). "Indoor tanning use among adolescents in the US, 1998 to 2004". *Cancer* 2009;115:190-8.

¹⁶ Boldeman C, et al. (1996). "Sunbed use in relation to phenotype, erythema, sunscreen use and skin diseases. A questionnaire survey among Swedish adolescents." *Journal of Dermatology* 1996;135:712-6.

¹⁷ Boldeman C, et al. (2001). "Tanning habits and sunburn in a Swedish population age 13-50 years". *European Journal of Cancer* 2001;37:2441-8.

¹⁸ Centers for Disease Control and Prevention (CDC). (2012). "Sunburn and Sun Protective Behaviors Among Adults Aged 18-29 Years – United States, 2000-2010." *Morbidity and Mortality Weekly Report*, May 11, 2012; 61:8.

¹⁹ Karagas, MR., et al. (2006). "Keratinocyte carcinomas (basal and squamous cell carcinomas of the skin)." *Cancer Epidemiology and Prevention*, Third Edition. New York, NY: Oxford University Press; 2006; 1230-50.

²⁰ Green, A., et al. (2011). "Reduced melanoma after regular sunscreen use: Randomized trial follow-up." *Journal of Clinical Oncology*, 2011; 29.

²¹ Dennis LK, et al. (2008). "Sunburns and risk of cutaneous melanoma, does age matter: a comprehensive meta-analysis." *Annals of Epidemiology*, 2008 Aug; 18(8):614-627

²² Nelemans, P., (1993). "Effect of Intermittent Exposure to Sunlight on Melanoma Risk Among Indoor Workers and Sun-Sensitive Individuals." *Environmental Health Perspective*, 1993; 101.

²³ Linos, E. et al. (2009). "Increasing burden of melanoma in the United States." *Journal of Investigative Dermatology*, 2009; 129.

²⁴ Dennis, L., et al. (2008). "Sunburns and risk of cutaneous melanoma, does age matter: A comprehensive meta-analysis." *Annals of Epidemiology*, August 2008; 18:8.

government data, and overzealous sun avoidance is the only plausible explanation for the 50 percent increase in that figure in the past 15 years."

Fact: While sunlight exposure is a source of vitamin D production for humans,²⁵ it is not the only source. Vitamin D can be found naturally in tuna, salmon, egg yolks, sardines, Swiss cheese, pork, mushrooms, and beef liver and has been added to fortified cereals, milk, yogurt and margarine.²⁶ Additionally, vitamin D supplements are available to support adequate dietary vitamin D intake.²⁷

From UV radiation, the main source of vitamin D production is exposure to ultraviolet B (UVB).²⁸ Most commercial tanning devices primarily emit ultraviolet A (UVA), which is relatively ineffective in stimulating vitamin D synthesis and has been linked to premature aging of the skin and skin cancer.²⁹

Indoor Tanning Industry: *A "base tan" obtained by using indoor tanning devices has a protective effect from excessive sun exposure."*

Fact: The presence of a tan, in any form, signifies DNA damage to the skin³⁰ and evidence from multiple studies simply does not support a protective effect of the use of indoor tanning beds against damage to the skin from subsequent sun exposure.³¹

²⁵ Ginde, A, et al. (2009). "Demographic Differences and Trends of Vitamin D Insufficiency in the US Population, 1988-2004." *Archives of Internal Medicine*, March 2009; 169:6.

²⁶ National Institutes of Health – Office of Dietary Supplements. (2011). "Vitamin D – Health Professional Fact Sheet." Accessed on June 12, 2012 at <http://ods.od.nih.gov/factsheets/vitamind-HealthProfessional/>

²⁷ National Institutes of Health – Office of Dietary Supplements. (2011). "Vitamin D – Health Professional Fact Sheet." Accessed on June 12, 2012 at <http://ods.od.nih.gov/factsheets/vitamind-HealthProfessional/>

²⁸ Bonevski, B. et al. (2012). "Prescribing sunshine: A cross-sectional survey of 500 Australian general practitioners; practices and attitudes about vitamin D." *International Journal of Cancer*, 2012; 130.

²⁹ Woo, DK and Eide, M.J. (2010). "Tanning beds, skin cancer, and vitamin D: An examination of the scientific evidence and public health implications." *Dermatological Theory* 2010, Jan-Feb (1) 61-71.

³⁰ Brady, et al. (2012). "Public Health and the Tanning Bed Controversy." *Journal of Clinical Oncology*; May 2012, Vol 30, No 14.

³¹ Dore, J-F and Cignol, M-C. (2012). "Tanning salons and skin cancer." *Photochemical and Photobiological Sciences*, 2012; 11:30.

U. S. HOUSE OF REPRESENTATIVES COMMITTEE ON ENERGY AND COMMERCE –
MINORITY STAFF

False and Misleading Health Information Provided to Teens by the Indoor Tanning Industry

Investigative Report

Prepared for Rep. Henry A. Waxman, Rep. Diana DeGette, Rep. Frank Pallone, Jr.,
Rep. Rosa L. DeLauro, and Rep. Carolyn Maloney

2/1/2012

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I. EXECUTIVE SUMMARY

The World Health Organization and the National Toxicology Program classify indoor tanning beds as a “known” human carcinogen. The American Academy of Pediatrics calls indoor tanning beds “generally unsafe for children” and, along with the American Academy of Dermatology Association, recommends a ban on their use by anyone under 18. Yet despite the mounting evidence of the dangers of indoor tanning, millions of young people use tanning salons each year – and this use is on the rise. The most frequent indoor tanners are young white females.

Rep. Henry A. Waxman, Ranking Member of the House Committee on Energy and Commerce, Rep. Diana DeGette, Ranking Member of the House Committee on Energy and Commerce Subcommittee on Oversight and Investigations, and Rep. Frank Pallone, Jr., Ranking Member of the House Committee on Energy and Commerce Subcommittee on Health, along with Reps. Rosa L. DeLauro and Carolyn Maloney, requested this investigation to determine if tanning salons are providing accurate information about cancer and other risks to teenage girls who purchase indoor tanning sessions. Committee investigators representing themselves as fair-skinned teenage girls contacted 300 tanning salons nationwide, including at least three in each state and the District of Columbia. The investigators asked each salon a series of questions about its policies and the risks and benefits of tanning. Committee investigators also reviewed the print and online advertising of tanning salons.

The vast majority of tanning salons contacted by Committee investigators provided false information about the serious risks of indoor tanning and made specious claims about the health benefits that indoor tanning provides. Specifically, Committee investigators found:

- **Nearly all salons denied the known risks of indoor tanning.** When asked whether tanning posed any health risks for fair-skinned teenage girls, 90% of the salons stated that indoor tanning did not pose a health risk. When asked about the specific risk of skin cancer, over half (51%) of the salons denied that indoor tanning would increase a fair-skinned teenager’s risk of developing skin cancer. Salons described the suggestion of a link between indoor tanning and skin cancer as “a big myth,” “rumor,” and “hype.”
- **Four out of five salons falsely claimed that indoor tanning is beneficial to a young person’s health.** Four out of five (78%) of the tanning salons claimed that indoor tanning would be beneficial to the health of a fair-skinned teenage girl. Several salons even said that tanning would prevent cancer. Other health benefits claimed by tanning salons included Vitamin D production, treatment of depression and low self-esteem, prevention of and treatment for arthritis, weight loss, prevention of osteoporosis, reduction of cellulite, “boost[ing] the immune system,” sleeping better, treating lupus, and improving symptoms of fibromyalgia.

- **Salons used many approaches to downplay the health risks of indoor tanning.** During their calls, Committee investigators representing themselves as fair-skinned teenage girls were told that young people are not at risk for developing skin cancer; that rising rates of skin cancer are linked to increased use of sunscreen; that government regulators had certified the safety of indoor tanning; and that “it’s got to be safe, or else they wouldn’t let us do it.” Salons also frequently referred the investigators to industry websites that downplay indoor tanning’s health risks and tout the practice’s alleged health benefits.
- **Tanning salons fail to follow FDA recommendations on tanning frequency.** The Food and Drug Administration recommends that indoor tanning be limited to no more than three visits in the first week. Despite this recommendation, three quarters of tanning salons reported that they would permit first-time customers to tan daily; several salon employees volunteered that their salons did not even require 24-hour intervals between tanning sessions.
- **Tanning salons target teenage girls in their advertisements.** The print and online advertising for tanning salons frequently target teenage and college-aged girls with student discounts and “prom,” “homecoming,” and “back-to-school” specials. These youth-oriented specials often feature “unlimited” tanning packages, allowing frequent — even daily — tanning, despite research showing that frequent indoor tanning significantly increases the likelihood that a woman will develop melanoma, the deadliest form of skin cancer, before she reaches 30 years of age.

II. BACKGROUND

A. The Growing Popularity of Indoor Tanning

Tanning salons first appeared in the U.S. in the 1970s. Their popularity grew slowly at first. By 1988, only 1% of American adults reported using indoor tanning facilities. But by 2007, that number had reached 27%.¹

Millions of young people use tanning salons each year — often without full knowledge of the risks of indoor tanning — and this use is on the rise. The most frequent indoor tanners are young white females. Researchers consistently find high rates of indoor tanning among white 16- to 18-year-old girls, with some studies reporting that as many as 40% of youth in this

¹ Denis K. Woo and Melody J. Eide, *Tanning Beds, Skin Cancer, and Vitamin D: An Examination of the Scientific Evidence and Public Health Implications*, Dermatologic Therapy (2010) (hereinafter, “*Tanning Beds, Skin Cancer, and Vitamin D*”).

demographic have used indoor tanning facilities.² Having a parent or guardian who has used indoor tanning in the last year is associated with a 70% increase in the likelihood that a young person will visit a tanning salon.³

Tanning salons tend to be concentrated in areas with more teenagers and young women aged 15 to 24.⁴ This proximity is itself associated with a 40% increase in likelihood of indoor tanning among teens.⁵

B. Cancer and Other Health Risks

Ultraviolet (UV) light is electromagnetic radiation with a wavelength longer than visible light but shorter than X-rays. Sunlight contains UV radiation and emits three bands of the UV spectrum: UVA, UVB, and UVC. Exposure to either UVA or UVB light can cause DNA damage that leads to carcinogenesis.⁶ The primary culprit in sunburn is UVB, and scientists once believed it to be the only carcinogenic part of the solar spectrum. Recent research, however, has confirmed that UVA exposure also contributes to development of skin cancer.⁷

Indoor tanning is a potent source of ultraviolet radiation, especially UVA. While many assume that the lamps in tanning beds contain less or similar amounts of light to that emitted by the sun, the UVA radiation emitted by these devices can be as much as 10 to 15 times more powerful than midday sunlight. Tanning lights also emit UVB radiation, although depending on the type of tanning device, the UVB emitted may be similar to or less powerful than the UVB emitted by the sun.

This radiation makes tanning beds dangerous. Medical research has identified indoor tanning as a cause of skin cancer, including melanoma, the deadliest form of the disease. The World Health Organization's International Agency for Research on Cancer (IARC) classifies tanning beds as a "Group 1" carcinogen, a category that also includes asbestos, arsenic, and

² *Id.*; Joni A. Mayer et al., *Adolescents' Use of Indoor Tanning: A Large-Scale Evaluation of Psychosocial, Environmental, and Policy-Level Correlates*, American Journal of Public Health (May 2011) (hereinafter, "*Adolescents' Use of Indoor Tanning*").

³ *See Adolescents' Use of Indoor Tanning.*

⁴ Vilma Cokkinides et al., *Indoor Tanning Use among Adolescents in the US, 1998 to 2004*, Cancer (Jan. 2009) (hereinafter, "*Indoor Tanning Use among Adolescents*").

⁵ *Indoor Tanning Use among Adolescents; Tanning Beds, Skin Cancer, and Vitamin D; Adolescents' Use of Indoor Tanning.*

⁶ Exposure to UVC is also carcinogenic, but UVC rays from the sun do not reach the earth's surface, so they do not present the same human health risks as UVA and UVB.

⁷ *See Tanning Beds, Skin Cancer, and Vitamin D.*

tobacco smoke.⁸ Similarly, the National Toxicology Program classifies tanning beds as “known to be human carcinogens.”⁹

The risk of melanoma is especially high for youth and young adults who engage in indoor tanning. According to the IARC, the melanoma risk is “increased by 75% when use of tanning devices starts before 30 years of age.”¹⁰ For those who report having undergone ten or more indoor tanning sessions in the first three decades of life, the risk of being diagnosed with melanoma before the age of 30 is six times higher than the risk for those who have never tanned indoors.¹¹ Scientists have found this risk to persist after controlling for sunburns and outdoor sunbathing habits of melanoma victims.¹² One recent study determined that for young people diagnosed with melanoma between the ages of 18 and 29 years old, “76% of melanomas were attributable to sunbed use.”¹³

Indoor tanning can cause “sunburn,” just like too much sun exposure. Nearly 60% of indoor tanners report experiencing burns after indoor tanning sessions, a major risk factor for melanoma.¹⁴ The risk of melanoma is highest for women reporting sunburns during adolescence.

Scientists have also documented a link between indoor tanning and other forms of skin cancer. Researchers have found that a single use of a tanning bed can increase one’s chance of acquiring basal cell carcinoma, even after controlling for a history of sunburns, sun exposure, and sunbathing.¹⁵ Recently published peer-reviewed research by scientists at the Yale Cancer

⁸ See International Agency for Research on Cancer, *Agents Classified by the IARC Monographs, Volumes 1-102* (available online at <http://monographs.iarc.fr/ENG/Classification/ClassificationsGroupOrder.pdf>) (visited Jan. 26, 2012).

⁹ U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program, *Report on Carcinogens, 12th ed.: Exposure to Sunlamps or Sunbeds* (2011).

¹⁰ *Special Report: Policy, A Review of Human Carcinogens — Part D: Radiation*, *The Lancet* (Aug. 2009); see also *Tanning Beds, Skin Cancer, and Vitamin D*.

¹¹ Anne E. Cust et al., *Sunbed Use During Adolescence and Early Adulthood Is Associated with Increased Risk of Early-Onset Melanoma*, *International Journal of Cancer* (May 2011) (hereinafter, “*Sunbed Use During Adolescence and Early Adulthood*”).

¹² See Marit Bragelien Veirød et al., *A Prospective Study of Pigmentation, Sun Exposure, and Risk of Cutaneous Malignant Melanoma in Women*, *Journal of the National Cancer Institute* (Oct. 2003); J Westerdahl, *Risk of Cutaneous Malignant Melanoma in Relation to Use of Sunbeds: Further Evidence for UV-A Carcinogenicity*, *British Journal of Cancer* (2000).

¹³ See *Sunbed Use During Adolescence and Early Adulthood*.

¹⁴ See *Indoor Tanning Use among Adolescents*.

¹⁵ See *Tanning Beds, Skin Cancer, and Vitamin D*.

Center showed that young people who have ever tanned indoors see a 69% increase in risk for developing basal cell carcinoma before the age of 40. Approximately one in four of these cancers, and 43% of the basal cell carcinomas in young women, could be prevented if people never used indoor tanning beds.¹⁶ The IARC found a similar link between indoor tanning and squamous cell carcinomas.¹⁷ The risk associated with indoor tanning is especially high for people with fair skin.¹⁸

The increased popularity of indoor tanning has coincided with a sharp rise in skin cancer.¹⁹ Melanoma is now the most common form of cancer for white women between the ages of 15 and 29 years old. Since 1980, the rate of melanoma in this group has increased by 50%.²⁰ Non-melanoma skin cancers have also seen a dramatic rise; by 2007, about 13 million Americans had had at least one such cancer. According to peer-reviewed research published in the *Archives of Dermatology*; the rate of non-melanoma skin cancer in the U.S. is “reaching epidemic proportions.”²¹

In addition to increasing cancer risks, tanning can cause ocular damage, premature aging of the skin, and exacerbate other medical conditions.²²

There are no health benefits to indoor tanning that outweigh the risks associated with the practice. There is no “safe or moderate tan.” Even short exposure to tanning can cause DNA damage. While many indoor tanners report using tanning beds to develop a “base tan” to protect against sunburns, researchers have concluded that indoor tanning offers no effective sunburn protection.

The tanning industry frequently promotes the benefits of Vitamin D and its association with UV light as an advantage of indoor tanning. Peer-reviewed medical research, however, shows that indoor tanning is an ineffective source of Vitamin D promotion. Although exposure to UVB light can produce Vitamin D, those most at risk of Vitamin D deficiency — people with darker skin — photosynthesize less Vitamin D. Moreover, the amount of UVB emitted from

¹⁶ See Leah M. Ferrucci et al., *Indoor Tanning and Risk of Early-Onset Basal Cell Carcinoma*, *Journal of the American Academy of Dermatology* (Dec. 2011).

¹⁷ See *Tanning Beds, Skin Cancer, and Vitamin D*.

¹⁸ Rutao Cui et al., *Central Role of p53 in the Suntan Response and Pathologic Hyperpigmentation*, *Cell* (Mar. 2007) (hereinafter, “*Central Role of p53*”); *Tanning Beds, Skin Cancer, and Vitamin D*.

¹⁹ *Tanning Beds, Skin Cancer, and Vitamin D*.

²⁰ National Cancer Institute, *NCI Cancer Bulletin* (July 2008).

²¹ *Study Finds “Epidemic” of Skin Cancer*, ABC News (Mar. 2010).

²² See James M. Spencer and Rex A. Amonette, *Indoor Tanning: Risks, Benefits, and Future Trends*, *Journal of the American Academy of Dermatology* (1995).

tanning devices varies, with some popular devices emitting relatively low levels. For most individuals, five to thirty minutes of midday sun twice each week accompanied by a healthy diet provides sufficient Vitamin D. For those with Vitamin D deficiency, physicians recommend oral supplements rather than increased exposure to UV radiation.²³

C. Federal and State Regulation

Under the Federal Food, Drug, and Cosmetic Act (FDCA), the Food and Drug Administration currently regulates tanning beds as Class I medical devices, the most lightly regulated device category. Other medical products regulated as Class I devices include band-aids, rubber gloves, and tongue depressors. Class I devices are subject to limited federal oversight; they are supposed to be those devices that “present minimal potential harm” to the user.

Tanning beds are subject to FDA’s general controls for medical devices (including rules about good manufacturing practices, recordkeeping, reporting, adulteration, and misbranding) and performance standards specific to tanning beds.²⁴ These standards: (1) establish limits on a tanning bed’s irradiance emissions; (2) require a mechanism by which a user of the device may terminate the tanning session at any time; (3) mandate that tanning bed manufacturers include protective eyewear with their products when distributed; (4) mandate the presence of a timer on each tanning bed (though the regulations state explicitly that “[t]he timer requirements do not preclude a product from allowing a user to reset the timer”); and (5) require that all tanning beds include the following warning label:

DANGER--Ultraviolet radiation. Follow instructions. Avoid overexposure. As with natural sunlight, overexposure can cause eye and skin injury and allergic reactions. Repeated exposure may cause premature aging of the skin and skin cancer. WEAR PROTECTIVE EYEWEAR; FAILURE TO MAY RESULT IN SEVERE BURNS OR LONG-TERM INJURY TO THE EYES. Medications or cosmetics may increase your sensitivity to the ultraviolet radiation. Consult physician before using sunlamp if you are using medications or have a history of skin problems or believe yourself especially sensitive to sunlight. If you do not tan in the sun, you are unlikely to tan from the use of this product.²⁵

While FDA does not prescribe any particular limits on the frequency or duration of indoor tanning sessions, it has issued guidance to manufacturers on recommended exposure frequency during the first week of indoor tanning. FDA requires that manufacturers of tanning devices provide directions for a tanning device’s use to purchasers. These directions must include a recommended exposure schedule, and FDA guidance suggests that this schedule

²³ See *Tanning Beds, Skin Cancer, and Vitamin D*.

²⁴ 21 U.S.C. § 360c(a)(1)(B).

²⁵ 21 C.F.R. § 1040.20(c)-(d).

recommend no more than three tanning sessions in the first week of indoor tanning exposure.²⁶

FDA is presently considering a reclassification of tanning beds, potentially triggering more stringent protections. On March 25, 2010, the General and Plastic Surgery Devices Panel of FDA's Center for Devices and Radiological Health Advisory Committee met to review recent scientific literature on risks posed by indoor tanning and to recommend whether changes to the devices' classification or regulatory controls are needed. The panel considered a presentation by FDA staff and testimony from the medical community and tanning salon industry. Testifying on behalf of the American Academy of Pediatrics, Johns Hopkins University Professor of Pediatrics and Dermatology Bernard Cohen stated that "the Academy believes that tanning lamps are generally unsafe for children and calls on the Food and Drug Administration to regulate them as such." He said the American Academy of Pediatrics supports a ban on tanning by children and teenagers, testifying: "In order to safeguard children and adolescents from the dangers of unsafe ultraviolet radiation exposure, the American Academy of Pediatrics recommends a ban on the use of tanning devices by individuals under the age of 18, unless under the guidance of their physician."²⁷

The FDA advisory panel concluded unanimously that tanning beds should not be Class I medical devices, with panelists split as to whether they should be Class II devices or Class III devices, which are subject to the strictest FDA controls. A majority of the panel favored age restrictions for tanning bed use. The panel also recommended enhanced education, training, and testing of tanning bed operators and improved labeling of tanning beds. In the words of one physician on the panel, dermatologist Dr. Erin Walker, such revisions to current regulations must make clear the medical consensus that "there is no such thing as a safe tan."²⁸ The FDA is currently considering these recommendations.

Some states have responded to the growth in the tanning industry and the mounting medical evidence of a link between tanning and skin cancer with regulations limiting access to tanning beds by children and adolescents. Over 30 states have enacted legislation regulating indoor tanning by teens — most commonly, by requiring parental consent for use of a tanning bed.²⁹ Even in states with these restrictions, the effectiveness of the regulations remains a

²⁶ FDA, Consumer Health Information, *Indoor Tanning: The Risks of Ultraviolet Rays* (Nov. 2009).

²⁷ FDA, Transcript of General and Plastic Surgery Devices Panel Meeting (Mar. 25, 2010) (available online at <http://www.fda.gov/downloads/AdvisoryCommittees/CommitteesMeetingMaterials/MedicalDevices/MedicalDevicesAdvisoryCommittee/GeneralandPlasticSurgeryDevicesPanel/UCM210232.pdf>) (visited Jan. 26, 2012).

²⁸ *Id.*

²⁹ See *Indoor Tanning Use among Adolescents; Tanning Beds, Skin Cancer, and Vitamin D*. Over twenty states have enacted laws requiring parental permission for children who wish

concern. Studies of compliance with parental consent laws in Texas, North Carolina, and Minnesota and Massachusetts have found tanning salon compliance rates of 11%, 13%, and 19%, respectively.³⁰ Despite an increase over the last decade in states requiring some form of parental permission for indoor tanning, researchers have found no measurable decrease in indoor tanning among older adolescent girls.

California recently enacted legislation banning indoor tanning by children altogether.³¹ The law took effect on January 1, 2012. California is the first and only state to protect children via a ban on indoor tanning. The indoor tanning industry opposed California's ban, while the American Academy of Dermatology praised it, commending the state for "protecting youth from the dangers of indoor tanning."³²

III. PURPOSE AND METHODOLOGY

Ranking Members Waxman, DeGette, and Pallone, along with Reps. DeLauro and Maloney, requested that the Democratic Committee staff investigate how tanning salons communicate risks to teens who seek information about indoor tanning sessions. In response to this request, Committee staff investigators, including college students interning with the Committee, telephoned indoor tanning salons across the country representing themselves as fair-skinned 16-year-old girls considering purchasing indoor tanning sessions for the first time.

to purchase indoor tanning sessions, with the age at which this requirement expires varying from 15 to 18. *See, e.g.*, Ariz. Admin. Code R 12-1-1414 A2; Ark. Stat. Ann. § 20-27-2202; Conn. Gen. Stat. § 19a-232; Fla. Stat. Ann. tit. § 381.89; Ga. Code Ann. § 31-38-8; Ind. Code Ann. § 25-8.4-15, 16; Ky. Rev. Stat. § 217.922; La. Rev. Stat. Ann. § 40:2701-18; Md. Health Code Ann. § 20-106; Mass. Gen. Laws Ann. ch. 111 Pub. Health § 211; Mich. Comp. Laws Ann. § 333.13405; Minn. Stat. Ann. § 325H.08; Miss. Dept. of Health Regs. tit. 15 part III subpart 78 ch. 2; Ohio Admin. Code 4713-19-09(B); OAR 333-119-0090(2); R.I. Dept. of Health Rules and Regs. for the Registration of Tanning Facilities, Part III § 9.5; S.C. Code Ann. ch. 61 § 106-4.5; Tenn. Code Ann. § 68-117-104; Utah Code Ann. § 26-15-13; Va. Code § 59.1-310.3; Wyo. Enrolled Act 26. Several other states require parental permission for older adolescents and prohibit indoor tanning for very young children, typically under the age of 14. *See, e.g.*, Del. Code Ann. tit. 16 § 30D; Ill. Admin. Code tit. 77 § 795.190(c); 10-144 Maine Dept. of Human Servs. Ch. 223 12A(3)(f); N.H. Rev. Stat. Ann. § tit. XXX 313-A:31; N.J. Rev. Stat. § C.26:2D-82.1; N.Y. Pub. Health Law § 3555; N.C. Gen. Stat. § 104E-9.1; N.D. Cent. Code § 23-39; Tex. Health and Safety Code Ann. § 145.008. Wisconsin has banned indoor tanning for those under 16, but has no parental consent requirements for older children. Wis. Code Ann. § 255.08(9)(a).

³⁰ *See Indoor Tanning Use among Adolescents in the US; Tanning Beds, Skin Cancer, and Vitamin D.*

³¹ Cal. Bus. and Prof. Code §§ 22706, 2241.3.

³² *See California Bans Indoor Tanning for Minors*, N.Y. Times (Oct. 10, 2011).

Committee investigators spoke with employees at 300 indoor tanning salons nationwide, including at least three salons in all 50 states and the District of Columbia.

On calls with salons, investigators asked: (1) whether the salon offered discounts to students or teens; (2) how frequently a new customer would be permitted to use the salon's tanning beds; (3) whether indoor tanning posed any risks for people with fair skin; (4) whether indoor tanning increased one's risk of acquiring skin cancer; and (5) whether indoor tanning provided any health benefits. When salons referred callers to information provided on a website, investigative staff reviewed these materials.

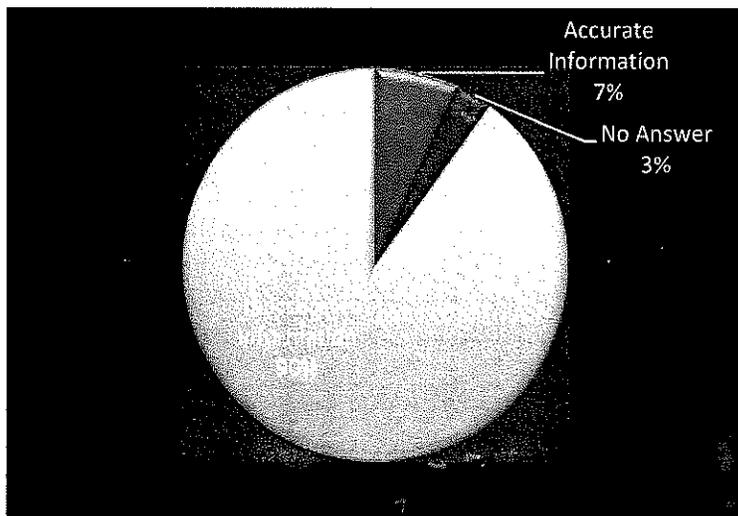
Committee staff also collected and reviewed advertising and promotional material created by indoor tanning salons. In particular, staff reviewed tanning salon websites, Facebook pages and posts for and by tanning salons, and print advertising.

IV. FINDINGS

A. Tanning Salons Provided False Information about the Health Risks of Indoor Tanning

The vast majority of the 300 tanning salons contacted by Committee staff provided inaccurate and misleading information about the health risks of indoor tanning. When Committee staff representing themselves as fair-skinned 16-year-old girls asked tanning salons whether indoor tanning would present any health risks, 90% of the salons reported that it presented no risk and only 7% reported that risks were present. The remaining 3% of salons did not provide clear answers about health risks.

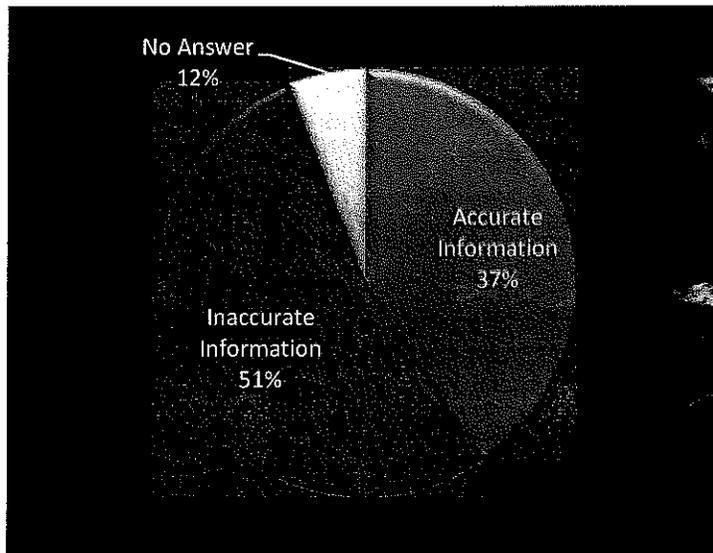
Figure 1:
90% of Salons Provided Inaccurate Information about Tanning Risks



When Committee investigators pressed salons about the specific threat of skin cancer, the majority of tanning salons provided information that was inaccurate and misleading. More than half (51%) of the 300 salons claimed that indoor tanning would not increase a young, fair-skinned person's risk of developing skin cancer. "No, no, no — that's not true whatsoever," insisted one salon employee. "Tanning

beds do not cause melanoma," another assured Committee staff. Others described cancer risks as "a big myth," "rumor," and "hype" that had not been "proven." "People who are meant to get skin cancer are just going to get skin cancer," one employee explained. "We wouldn't offer it if we thought it caused cancer," stated another.

Figure 2:
51% of Salons Denied a Link between Indoor Tanning and Skin Cancer



Even salons that accurately reported skin cancer risks misleadingly described those risks. One equated the skin cancer risk associated with indoor tanning as similar to that posed by the sunlight absorbed while "walking to your car." Another compared the risk of cancer from indoor tanning to that presented by "standing in front of the microwave" oven.

Several salons provided misleading advice about who is at risk for skin cancer.

Employees at two salons told investigators representing themselves as 16-year-olds that skin cancer from indoor tanning is only a concern for "for an old person" or "older people." Another suggested that use of sunscreen could actually increase one's risk for skin cancer, explaining that "skin cancer rates increased when sunscreen started being promoted."

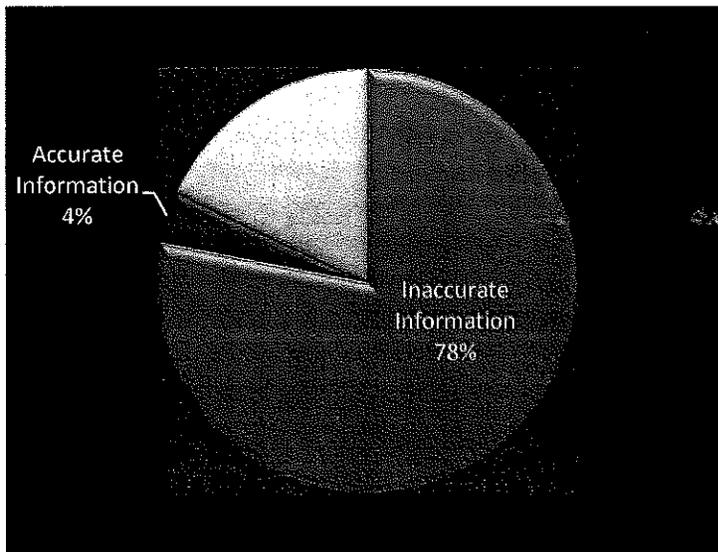
In discussing cancer risks, some salons pointed to the regulatory environment for indoor tanning as evidence of a lack of risk. These salons suggested that the current state of regulation amounted to confirmation of the practice's safety, telling Committee investigators: "If it was incredibly bad for you, you wouldn't be allowed to do it"; "It's got to be safe, or else they wouldn't let us do it"; "you can get skin cancer from being outside . . . but our [tanning] beds are certified and regulated"; and "the FDA wouldn't approve tanning salons if it weren't safe."

Salons also provided false information about skin damage and the risk of burns that might occur in a fair-skinned, first-time indoor tanner. Several suggested that indoor tanning is significantly less risky than casual exposure to natural sunlight. Others were unconcerned about skin damage from any source. One suggested that "aggressive tanning" is necessary when trying to build a tan in a fair person. Another told the caller that fair-skinned clients "just have to get that burning out of the way."

B. Tanning Salons Provided Inaccurate or Misleading Information about Health Benefits of Indoor Tanning

Tanning salons frequently claimed that indoor tanning would be beneficial to the health of teenagers, despite medical consensus to the contrary. Overall, 78% of the salons reached by Committee staff claimed that indoor tanning would provide health benefits. "Tanning is very good for you," one salon employee volunteered.

Figure 3:
78% of Salons Claimed Indoor Tanning Is Beneficial to Health



The most common benefit claimed by salons was promotion of Vitamin D production, with 60% of salons asserting that indoor tanning would be a good source of Vitamin D. Physicians do not recommend indoor tanning as a source of Vitamin D, however. Those most at risk of Vitamin D deficiency are least likely to increase Vitamin D levels through tanning because they typically have darker skin. Moreover, the level of UVB radiation from tanning devices,

which is what can produce Vitamin D, can vary considerably, with several popular devices emitting relatively low levels that would not contribute significantly to Vitamin D production.

Employees at eleven salons claimed that indoor tanning would prevent cancer. One named skin cancer, breast cancer, colon cancer, and prostate cancer as diseases that could be prevented through use of tanning beds.

Other health benefits mentioned by salons contacted by Committee staff include treatment of depression and low self-esteem, treatment for acne, prevention of and treatment for arthritis, weight loss, prevention of osteoporosis, "skin tightening," reduction of cellulite, "boost[ing] the immune system," improved sleeping, treating lupus, and improving symptoms of fibromyalgia.

C. Tanning Salons Regularly Disregarded FDA Safety Recommendations

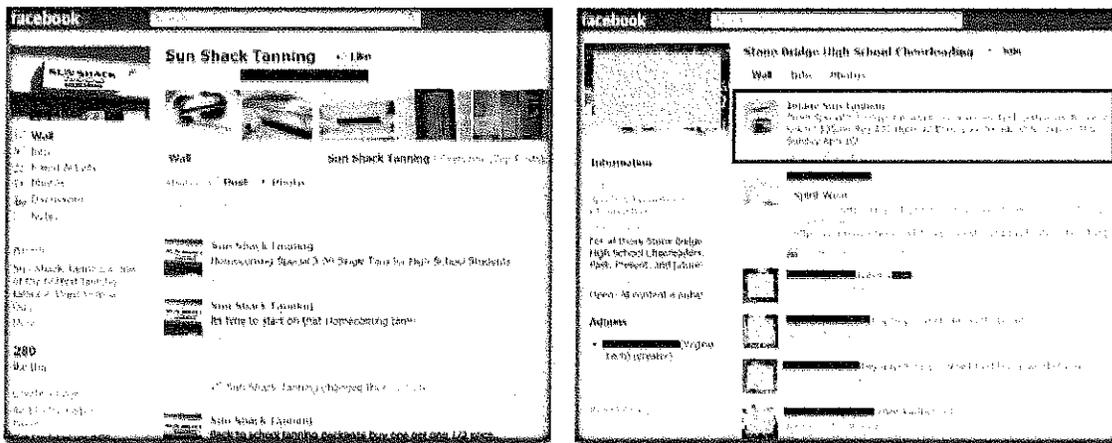
Three quarters of tanning salons did not follow FDA recommendations on tanning frequency. The FDA recommends that indoor tanning be limited to no more than three visits in

the first week. Despite this recommendation, 74% of the salons that Committee staff contacted stated that they would permit first-time, fair-skinned teenage girls to tan daily, and four salon employees volunteered that their salons did not require 24-hour intervals between tanning sessions.

D. Tanning Salons Targeted the Teen Market in Advertisements

The tanning salons contacted by Committee investigators frequently targeted youth in their marketing promotions. Among the tanning salons contacted by Committee investigators, over half (52%) offered discounts to students or teens.

Committee investigators reviewed over one hundred tanning salon websites and newspaper advertisements and found that “prom,” “homecoming,” and “back-to-school” specials are common. “It’s time to start on that Homecoming tan!!!” states a typical advertisement. Committee investigators also found that tanning salons are active users of social media, with many maintaining Facebook pages and Twitter accounts. Salons post notices about discounts on their own social media sites and also on Facebook pages for student groups, such as cheerleading squads.



The most common discounts offered to young people in the advertising materials reviewed by Committee staff were reduced rates on “unlimited” tanning packages, which allow customers to visit a salon as often as they wish in a particular period of time (typically, one month). This type of discounting raises concern because, while any use of indoor tanning increases skin cancer risks, frequent tanning sessions significantly increase the chance of acquiring melanoma.

The collage features several advertisements:

- Top Left:** A photo of a group of people with the text "2011 Homecoming".
- Top Middle:** "Attention All Students: 1 Month Unlimited ONLY \$25.99" for tanning services at "THE TANNING SPOT".
- Top Right:** "Beauty Parlor We Do Up Do's Feather & Color Expressions For Homecoming, Prom & Formals".
- Middle Left:** "10 Minute 'Ultra' Standup Unit Provides an All-Over & Fast Tent" for "SUNBERRY TANNING".
- Middle Center:** "HAUTE HOMECOMING" featuring a woman in a black dress and the text "Why Shop Anywhere Else?".
- Middle Right:** "Endless Summer Tanning, Nail, Hair & Day Spa 'HOMECOMING SPECIALS'" with a "1 month unlimited 20 minute bed \$24.99 +tax" offer.
- Bottom Left:** "SUNNYVILLE CUTE HOMECOMING Specials Hair Feathering \$5.00".
- Bottom Right:** "THE WORLD'S SMALLEST SUPER HEROES 52 ALL-NEW 1" comic book advertisement.

E. Tanning Industry Websites Provide Misleading Information

When presented with requests for health information about indoor tanning, tanning salons frequently directed investigators to tanning industry websites that create a misleading picture of the risks and benefits of indoor tanning. Most commonly, they suggested that teens curious about the health impact of indoor tanning visit www.tanningtruth.com or www.smarttan.com. Both sites are associated with the "International Smart Tan Network," a tanning industry trade association. The sites downplay the cancer risk associated with indoor tanning and tout the practice's alleged health benefits.

Visitors to www.tanningtruth.com see a series of large-print pro-tanning statements running across the top of the screen while navigating the website. The statements begin with an assertion that “[s]aying sunlight is harmful and therefore we should avoid it is as misleading as saying that water causes drowning, and therefore we should avoid it.” Statements that follow suggest that medical advice about the use of sunscreen and avoidance of indoor tanning is driven by the profit motives of pharmaceutical companies and dermatologists.

The website’s discussion of the health impacts of tanning present a different picture than that provided by peer-reviewed medical research. Under a tab labeled “What are the real risks of indoor tanning?” the industry website questions the link between indoor tanning and melanoma, saying that “the relationship between melanoma and ultraviolet light remains unclear.” Under a tab labeled “Are there any benefits to indoor tanning?” the trade association claims that tanning is “nature’s sunscreen,” treats cosmetic skin conditions, and promotes Vitamin D production. The site then suggests that indoor tanners produce a “sufficient” level of Vitamin D, “non-tanners” produce a “deficient” level, and dermatologists experience a “severe deficiency” of Vitamin D.

The other industry website, www.smarttan.com, also provides misleading information about Vitamin D and tanning. On this website, salon operators may purchase “D-Angel” training, which “teaches [salon] employees why Smart Tanning is vindicated and why they should spread the truth about UV and Vitamin D to their friends and family.” It provides a link to a website for the “Vitamin D Council,” which suggests that Vitamin D promotion yields a host of health benefits, including prevention of cancer, heart disease, diabetes, autism, multiple sclerosis, chronic digestive diseases, food allergies, and tuberculosis, as well as treatment for lupus.

V. CONCLUSION

Indoor tanning significantly increases skin cancer risks and presents a number of other significant health concerns. These risks are particularly acute for teenagers and young adults. Indoor tanning salons, however, regularly deny these risks. When Committee investigators contacted 300 tanning salons to ask about the risks indoor tanning posed to fair-skinned teenage girls, the vast majority of salons denied that indoor tanning increases health risks.

The dangers to teenage girls are exacerbated by tanning industry practices. Committee investigators found that the marketing practices of tanning salons target teenagers and young adults, often offering back-to-school, homecoming, and prom promotions.