

Protecting Teens from Indoor Tanning Will Save Lives



Skin cancer is the most commonly diagnosed cancer in the United States, and rates have been rising for the past 30 years.¹ Nearly 95,400 *invasive* skin cancers will be diagnosed in the U.S. in 2017, and more than 87,000 of these cases will be melanoma, the most serious and deadliest form of skin cancer.¹ Additionally, over 74,600 cases of *non-invasive* melanomas and millions of cases of invasive and non-invasive basal and squamous cell skin cancers will also be diagnosed in 2017.¹ In total, nearly 13,600 men and women are expected to die of skin cancer this year, and over 9,700 of those deaths will be from melanoma.¹

The greatest avoidable known risk factor for skin cancer is avoiding the use of indoor tanning devices. Yet, each year, an estimated 11.3 million Americans engage in indoor tanning.^{2,3} A study estimated that more than 410,000 cases of skin cancer may be attributable to indoor tanning in the U.S.⁴ Of those cases, approximately 6,200 cases of melanoma have been attributed to indoor tanning.⁴ Unfortunately, the desire for a tanned appearance causes many people, especially young adults and teenagers, to ignore the serious risks and health warnings and use indoor tanning devices.

Harms of UV Radiation and Indoor Tanning

- Indoor tanning devices include beds, booths, and sunlamps that emit ultraviolet (UV) radiation.
- Exposure to UV radiation can lead to DNA damage to skin, resulting in short-term adverse effects such as sunburn, eye damage, fainting, and suppression of the immune system.^{1,5,6}
- The damage of UV radiation is cumulative over an individual's lifetime, with repeated exposure resulting in long-term effects such as premature aging of the skin, wrinkles, solar keratosis, permanent eye damage, and skin and ocular cancers.^{1,6}
- Over 3,200 indoor tanning-related acute injuries are treated in U.S. hospital emergency departments each year, with over 400 of those injuries affecting individuals under the age of 18.⁶
- Tanning before the age of 35 increases the risk of melanoma by 59 percent, squamous cell carcinoma by 67 percent, and basal cell carcinoma by 29 percent.^{7,8} Rates increase even more when tanning devices are used before age 25.⁸

The effects of UV radiation are so harmful that local, state, national, and international officials are calling for additional restrictions on the use of tanning devices, especially among youth under age 18.

- The World Health Organization's (WHO) International Agency for Research on Cancer categorizes tanning devices as its highest cancer risk category (Class 1) – "carcinogenic to humans;"⁹ the same designation given to tobacco products.
- The U.S. Surgeon General released a call to action to prevent skin cancer, naming tanning devices as a risk factor for skin cancer and encouraging the restriction of these devices for individuals under 18, as well as proper enforcement of state laws.¹⁰
- In 2014, the Food and Drug Administration (FDA) reclassified tanning devices to a class II device, which requires greater regulatory safety controls. In addition, the agency recommended that sunlamp products not be used by individuals under 18.¹¹



Image Citation: The University of Arizona Cancer Center. "Dangers of Tanning Beds." <http://uacc.arizona.edu/sci/skin-cancer-prevention/tanning-bed-danger>.

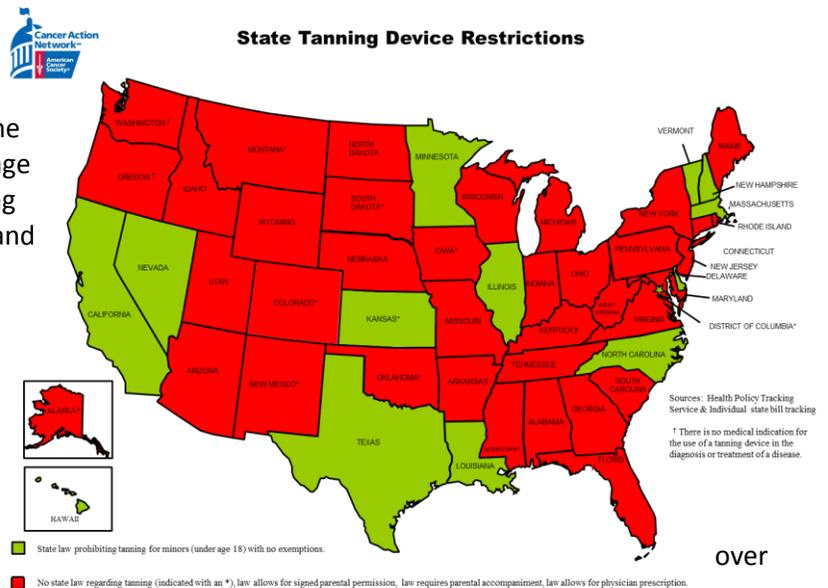
Teens and Tanning

Despite the dangers, misconceptions about the risks and benefits of indoor tanning exist, due, in part, to misleading advertising and health claims by the tanning industry.^{12,13} Youth are especially susceptible to the industry's misleading claims, as the industry frequently targets youth in marketing promotions (i.e. back-to-school, prom, and homecoming specials).¹³ These campaigns are cause for concern because teens are tanning at increasingly higher rates.

- One in nine high school girls have used a tanning device, with numbers increasing to one in six by their senior year.¹⁴
- Nationwide, 7.3 percent of students used an indoor tanning device, but prevalence was higher among non-Hispanic white female high school students at a rate of 15.2 percent.¹⁴
- Nearly 56 percent of teens reported getting a burn from a tanning device or sun within the past year.¹⁴
- Melanoma incidence rates are steadily increasing, largely among youth non-Hispanic white females, and, in part, due to indoor tanning.^{15,16,17}
- Melanoma is currently the second most common cancer among females aged 15-29 and the second most common cancer among females aged 25-29.¹⁸

The Need for Indoor Tanning Age Restriction Laws

If properly enforced, age restriction laws that prohibit the use of indoor tanning devices for individuals under the age of 18 are effective in deterring minors from using tanning devices and could help to reduce skin cancer incidence and mortality rates across the country.^{19,20,21,22} Female high school students in states with indoor tanning laws, particularly those with age restrictions, are 30 percent less likely to use indoor tanning than in states without any laws.¹⁹ A recent Minnesota Department of Health survey found that, since the state's law to prohibit minors under the age of 18 from using indoor tanning devices was passed, the number of 11th grade white females that used indoor tanning devices decreased 70 percent –from 33 percent in 2013 to 9 percent in 2016.²³ Additionally, a recent CDC cohort study following a group of 61.2 million youth aged 14 years or younger in the U.S. found that restricting indoor tanning among minors younger than 18 years was estimated to prevent 61,839 melanoma cases, prevent 6,725 melanoma deaths, and save the U.S. \$342.9 million in treatment costs over the group's lifetime.²⁴



Parental Consent Provisions Are Inadequate to Protect Children and Adolescents

Parental permission laws without age restriction are not associated with reduced use of indoor tanning among youth.²¹ Multiple studies have shown that youth are able to purchase a tanning session without parental permission, even if it is required by law.^{19,20,21,25,26} Additionally, literature shows that parental permission and parental tanning bed use are strongly associated with the use of indoor tanning among youth.^{20,27,28,29}

ACS CAN Position

To protect youth from the harmful effects of artificial UV radiation, ACS CAN supports laws and regulations that restrict access of tanning devices for individuals under 18, **without exceptions**. In addition, state and local governments need to ensure that enforcement measures and oversight mechanisms are in place to guarantee that youth are not gaining access to these harmful devices.

- ¹ American Cancer Society. *Cancer Facts & Figures 2017*. Atlanta, GA: American Cancer Society; 2017.
- ² Guy GP, Berkowitz Z, Everett JS, Holman DM, Garnett E, Watson M. Trends in indoor tanning among US high school students, 2009-2013. *JAMA Dermatol*. 2015; 151(4):448-50.
- ³ Guy GP, Berkowitz Z, Holman DM, Hartman AM. Recent changes in the prevalence of and factors associated with frequency of indoor tanning among US adults. *JAMA Dermatol*. 2015; 151(11):1256-59.
- ⁴ Wehner MR, Chren MM, Nameth D, Choudhry A, Gaskins M, Nead KT, et al. International prevalence of indoor tanning: a systematic review and meta-analysis. *JAMA Dermatol*. 2014; 150(4): 390-400. doi: 10.1001/jamadermatol.2013.6896.
- ⁵ Eller MS, Maeda T, Magnoni C, Atwal D, Gilchrist BA. Enhancement of DNA repair in human skin cells by thymidine dinucleotides: evidence for a p53-mediated mammalian SOS response. *Proc Natl Acad Sci U S A*. 1997;94(23):12627-12632.
- ⁶ Guy GP, Watson M, Haileyesus T, Annett JL. Indoor tanning-related injuries treated in a national sample of US hospital emergency departments. *JAMA Internal Medicine*. 2015; 175(2): 309-311.
- ⁷ The 59% increased risk is cited here: Boniol B., Autier P., Boyle P., Gandini S. Corrections: Cutaneous melanoma attributable to sunbed use: systematic review and meta-analysis. *BMJ*. 2012; 345:e8503. Published December 2012; which is a correction of the original article cited here: Boniol B., Autier P., Boyle P., Gandini S. Cutaneous melanoma attributable to sunbed use: systematic review and meta-analysis. *British Medical Journal*. 2012; 345:e4757. Correction published December 2012; 345:e8503.
- ⁸ Wehner MR, Shive ML, Chren MM, Han J, Qureshi AA, Linos E. Indoor tanning and non-melanoma skin cancer: systematic review and meta-analysis. *BMJ*. 2012, 345:35909. doi: <http://dx.doi.org/10.1136/bmj.e5909>.
- ⁹ El Ghissassi F, Bann R, Straif K, Grosse Y, Secretan B, Bouvard V, et al. A review of human carcinogens – part D: radiation. *Lancet Oncol*. 2009; 10(8):751-2.
- ¹⁰ U.S. Department of Health and Human Services. The Surgeon General's call to action to prevent skin cancer. Washington, D.C.: U.S. Dept of Health and Human Services, Office of the Surgeon General; 2014.
- ¹¹ Federal Register. General and plastic surgery devices: reclassification of ultraviolet lamps for tanning, henceforth to be known as sunlamp products and ultraviolet lamps intended for use in sunlamp products. Published June 2, 2014. Accessed March 10, 2016. <https://www.federalregister.gov/articles/2014/06/02/2014-12546/general-and-plastic-surgery-devices-reclassification-of-ultraviolet-lamps-for-tanning-henceforth-to>.
- ¹² U.S. House of Representatives Committee on Energy and Commerce Minority Staff. (2012, February 1). False and Misleading Information Provided to Teens by the Indoor Tanning Industry – Investigative Report.
- ¹³ United States of America Federal Trade Commission. (2010, May 13). In the Matter of Indoor Tanning Association, a corporation - Docket Number C-4290 Decision and Order. Available at ftc.gov/os/caselist/0823159/100519tanningdo.pdf.
- ¹⁴ Centers for Disease Control and Prevention (CDC). Youth Risk Behavior Surveillance-United States, 2015. *MMWR*. 2016; 65(6).
- ¹⁵ Guy GP, Berkowitz Z, Watson M, Holman DM, Richardson LC. Indoor tanning among young non-Hispanic white females. *JAMA Intern Med*. 2013; 173(20):1920-22. doi: 10.1001/jamainternmed.2013.10013.
- ¹⁶ Lazovich D, Vogel RI, Weinstock MA, Nelson HH, Ahmed RL, Berwick M. Association between indoor tanning and melanoma in younger men and women. *JAMA Dermatol*. 2016; doi: 10.1001/jamadermatol.2015.2938.
- ¹⁷ Guy GP, Watson M, Richardson LC, Lushniak BD. Reducing indoor tanning—an opportunity for melanoma prevention. *JAMA Dermatol*. 2016; doi: 10.1001/jamadermatol.2015.3007.
- ¹⁸ NAACCR Fast Stats: An interactive tool for quick access to key NAACCR cancer statistics. North American Association of Central Cancer Registries. <http://www.naacr.org/>. (Accessed on 2-24-2016)
- ¹⁹ Guy GP, Berkowitz Z, Jones SE, Olsen E, Miyamoto JN, Michael SL, et al. State indoor tanning laws and adolescent indoor tanning. *Am J Public Health*. 2014; 104(4):e69-74.
- ²⁰ Mayer JA, Woodruff SI, Slymen DJ, et al. Adolescents' use of indoor tanning: a large-scale evaluation of psychosocial, environmental, and policy-level correlates. *Am J Public Health*. 2011; 101(5):930-8.
- ²¹ Watson M, Holman DM, Fox KA, et al. Preventing skin cancer through reduction of indoor tanning: current evidence. *Am J Prev Med*. 2013;44: 682-689.
- ²² Sinclair C, Makin JK. Implications of lessons learned from tobacco control for tanning bed reform. *Pre Chronic Dis*. 2013; 10:120186. doi: <http://dx.doi.org/10.5888/pcd10.120186>.
- ²³ Minnesota Department of Health. Teens, indoor tanning and melanoma. Published December 1, 2016. Accessed on December 2016. http://www.health.state.mn.us/divs/chs/mss/MDHIndoorTanningFactSheetw_ref.pdf.
- ²⁴ Guy GP, Zhang Y, Ekwueme DU, Rim SH, Watson M. The potential impact of reducing indoor tanning on melanoma prevention and treatment costs in the United States: An economic analysis. *J Am Acad Dermatol*. 2016; 1-8.
- ²⁵ Forster JL, Lazovich D, Hickle A, Sorensen G, Demierre MF. Compliance with restrictions on sale of indoor tanning sessions to youth in Minnesota and Massachusetts. *J Am Acad Dermatol*. Dec 2006;55(6):962-967.
- ²⁶ Pichon LC, Mayer JA, Hoerster KD, et al. Youth access to artificial UV radiation exposure: practices of 3647 US indoor tanning facilities. *Arch Dermatol*. 2009;145: 997-1002.
- ²⁷ Hoerster KD, Mayer JA, Woodruff SI, Malcarne V, Roesch SC, Clapp E. The influence of parents and peers on adolescent indoor tanning behavior: findings from a multi-city sample. *J Am Acad Dermatol*. 2007; 57(6):990-7.
- ²⁸ Cokkinides VE, Weinstock MA, O'Connell MC, Thun MJ. Use of indoor tanning sunlamps by U.S. youth, ages 11-18 years, and by their parent or guardian caregivers: prevalence and correlates. *Pediatrics*. 2002; 109(6):1009-14.
- ²⁹ Cokkinides V., Weinstock M., Lazovich D., Ward E., Thun M. Indoor tanning use among adolescents in the U.S., 1998-2004. *Cancer*. 2009; 115: 190-198.