



August 15, 2014

Office of Science Quality
Centers for Disease Control and Prevention
InfoQuality@cdc.gov

This is a supplement to our April 16, 2014 submission of an information quality request for correction.

We are in receipt of your letter to us dated July 30, 2014 responding to our April 16, 2014 submission.

We have noticed, and very much appreciate, the revision the CDC made to its webpage on Indoor Tanning on July 14, 2014 deleting the phrase "people who begin tanning younger than age 35 have a 59% higher risk of melanoma." However, the webpage still states that "*Indoor tanning is particularly dangerous for younger users; people who begin tanning during adolescence or early adulthood have a higher risk of getting melanoma.*" which we respectfully suggest is not correct.

The purpose of this supplemental submission is to request a correction of the preceding italicized sentence which appeared on the CDC's website on July 14, 2014.

Our supplemental filing is as follows:

This is a submission of an information quality request for correction.

Detailed description of the specific information that needs to be corrected.

The information that needs to be corrected is the following sentence: "*Indoor tanning is particularly dangerous for younger users; people who begin tanning during adolescence or early adulthood have a higher risk of getting melanoma.*" This sentence appears on the CDC's website under the heading "Dangers of Indoor Tanning" in the section of the CDC's website titled "Indoor Tanning Is Not Safe" at http://www.cdc.gov/cancer/skin/basic_info/indoor_tanning.htm.

The specific reasons for believing the information does not comply with OMB, HHS or CDC guidelines and is in error.

The information is scientifically incorrect. It appears to be based on the 2014 Colantonio meta-analysis referred to below which, to the contrary, finds that there is no statistically significant relationship between risk of melanoma and tanning at less than 25 years of age. Also, the 2010 Lazovich study referenced on the CDC's website specifically finds that younger users are not at increased susceptibility to the effects of UV radiation. Lazovich at page 1566.

The risk of melanoma and other skin cancers from use of artificial UV lamps varies widely depending on the different locations in which such lamps are used; home use, commercial use in

beauty parlors, gyms and indoor tanning salons, and medical use for treatment of skin conditions such as psoriasis. Risk from commercial use also varies according to the jurisdictions in which such lamps are used since various jurisdictions have different regulatory regimes governing use of such lamps in commercial settings. Additionally, risk varies according to year of use because there was a major change in the technology and emitted spectra of artificial UV lamps in the late 1970's (up to 25% UVB and even some UVC prior to the late 1970s and 1-5% UVB and 95-99% UVA mimicking the sun after the late 1970's). Sunburns have been associated with increased risk of melanoma, and the risk of getting an indoor UV burn varies widely among these different locations, jurisdictions and year of use. On the other hand, moderate non-burning UV exposure has been associated with reduced risk of melanoma, and it has been observed that outdoor workers have a lower incidence of melanoma than indoor workers. There is no scientific evidence that there is any difference as regards melanoma risk in solar UV exposure vs. artificial UV exposure.

In 2006, an IARC Working Group did a systematic review of the literature on all epidemiological studies then available having data on melanoma and sunbed use. "Sunbeds" as used by this Working Group meant sunbeds used in commercial tanning salons, mostly in Europe, and sun lamps, sunbeds and other artificial UV devices used at home, in gyms, in beauty salons and in medical facilities. Some of the sunbed use studied occurred before the late 1970's and some occurred later. Their conclusion from their meta-analysis of this data was that "first exposure to sunbeds before 35 years of age significantly increased the risk of melanoma, based on 7 informative studies (summary relative risk, 1.75; 95% CI, 1.35-2.26)." However, none of the 7 studies had any data on burning vs. non-burning sunbed exposure, so any conclusions separating the risk of burning vs. non-burning exposure were not possible. This is a serious deficiency in the IARC meta-analysis since UV burning is a risk factor for melanoma with an OR of approximately 2.00 and non-burning UV exposure can be protective against melanoma, as shown by the 2005 Gandini study of all the risk factors for melanoma.

Also with the IARC study, there was insufficient break-out of the data according to home use vs. commercial vs. medical use to permit any general conclusions separating the risk from home use vs. commercial use and medical use, although individual studies showed higher risk from home use and medical use. Finally there was insufficient break-out of the data according to pre-1970's use vs. post-1970's use to permit any general conclusions separating the risk of pre-1970's use from post-1970's use, although one study showed that the risk for pre-1970's use was far higher. The Working Group therefore simply combined all the data from all the different locations of use, jurisdictions of use and year of use into a mixed pool of data in coming to its conclusion quoted above. As noted, some of the 7 studies did break out data according to location of use and in such studies the risk of home use was found to be significantly greater than the risk of commercial tanning salon use. For example, Walter 1990 found that "home use is associated with a significant odds ratio of each sex, suggesting about a doubling of risk" but that "commercial sunbed/sunlamp use was more common in females, but their odds ratio is very close to 1" and "the commercial sunbed/sunlamp odds ratio for males is elevated, but does not attain statistical significance either." See Walter 1990 at page 237. Chen found an OR=2.03 for use at home and OR=0.63 for use in commercial settings (see Table 3 in Chen). Walter 1990 also found an elevated risk for medical use by females (OR=8.42) but not for men (OR=0.88). The finding of higher risk from home use was confirmed by Papas, which examined the location of use data in the 4 studies that had such data (Walter, Chen, Westerdahl 2000, and Bataille) and found significantly higher risk from home use than for commercial tanning salon use. A plausible explanation for the higher risk of home use is that users are more likely to get burned at home than in commercial tanning salons, due to the lack of regulation and controls on tan times in the home setting.

Another problem with the IARC report, especially in attempting to apply it to US tanning salons, is that most of the data in the IARC meta-analysis came from studies in Scotland, Sweden, Norway, Belgium, France and The Netherlands (5 of the 7 studies). At the time of the sunbed use studied, these countries had no effective regulation of commercial indoor tanning, with the result that, as noted in the IARC report, up to 55% of users in these countries received UV burns.

The remaining 2 studies, one in Ontario, Canada and the other in Connecticut, both had separate data for commercial tanning salon use of sunbeds and home and medical use of sunbeds, and both found no risk of melanoma associated with commercial tanning salon use. The Connecticut study, in fact, found a protective effect for persons under age 25 using commercial tanning salons, with an adjusted RR of 0.63. See Table 3 in Chen. When use after 1970 was separated from use before 1970, the Connecticut study found the protective effect for combined home and commercial tanning salon use for persons under age 25 after 1970 increased, with an RR of 0.54. See Table 4 in Chen. The 2006 IARC report mistakenly cited the Connecticut study (Chen) as showing an RR=1.38 instead of 0.54 and used this erroneous number in its forest plot in Figure 2 of the IARC report. Other mistakes in the IARC report include using RR=2.58 (for ages 20-29) instead of RR=1.55 (for ages 10-29) in the forest plot for Veierod and OR=1.82 (ages 0-14) instead of OR=0.9 (mean age of 24) in the forest plot for Bataille.

All of the foregoing is in addition to the finding by Dr. David G. Hoel of the University of South Carolina Medical School that the selection of the 7 studies was flawed by publication bias and that the 75% figure, aside from the necessary corrections set forth above, was “invalid”. Dr. Hoel is a member of the Institute of Medicine and is one of the 20 scientists from nine countries who met at IARC in 2009 to reassess the carcinogenicity of various types of radiation and changed the classification of UVR from Group 2A (probably carcinogenic to humans) to Group 1 (carcinogenic to humans).

The 2006 IARC meta-analysis was updated in 2012 by the Boniol meta-analysis, which was written by four of the members of the 2006 IARC Working Group. This update included data from 6 additional studies and lowered the melanoma risk for combined home and commercial use for persons under age 35 from the 75% stated in the IARC meta-analysis to 59% (summary relative risk, 1.59; 95% CI 1.36-1.85).

The 2012 Boniol meta-analysis was updated in 2014 by the Colantonio meta-analysis to account for newer tanning equipment and to focus on persons younger than age 25. Colantonio, which analyzed data from 31 studies covering 248,000 persons, lowered the melanoma risk for combined home and commercial use for persons under age 35 from the 59% stated in Boniol to 35% for persons under age 25 (OR, 1.35; 95% CI 0.99-1.84). Since the 95% confidence interval includes the value 1.00 the 35% figure is considered not to be statistically significant.

Additionally, Colantonio repeated the mistake of IARC with respect to the Chen study for persons under age 25, and performed a sensitivity analysis in its Supplemental Table V which showed a risk of 21% (OR, 1.21; 95% CI 0.91-1.61) before any correction for Chen. As with IARC and Boniol, all of the numbers for melanoma risk in Colantonio were for home and commercial indoor tanning salon use combined, and there was no finding of a separated risk for commercial indoor tanning salon use alone. Since the 95% confidence interval includes the value 0.91, the 21% figure is also considered not to be statistically significant.

A fair summary of all the foregoing is that scientific studies to date have shown no statistically significant risk of melanoma from combined home and commercial tanning salon use of sunbeds by persons under age 25, and other studies have shown a much higher risk for home use than for commercial tanning salon use. Thus the current state of the science provides no scientific basis for the statement: *"Indoor tanning is particularly dangerous for younger users; people who begin tanning during adolescence or early adulthood have a higher risk of getting melanoma."*

The specific recommendation for correcting the information

We recommend that the sentence *"Indoor tanning is particularly dangerous for younger users; people who begin tanning during adolescence or early adulthood have a higher risk of getting melanoma."* be deleted from the CDC's website.

Description of how the person submitting this complaint is affected by the information error

The American Suntanning Association represents the owners of approximately 1,000 indoor tanning salons in 31 states of the U.S. The information error harms the business of indoor tanning salons by inducing younger persons not to use indoor tanning salons.

The name, mailing address, telephone number and e-mail address of the person making this complaint

The person making this complaint is the American Suntanning Association, which is a trade association of indoor tanning salon owners in the United States. The mailing address, telephone number and e-mail address of the American Suntanning Association is:

American Suntanning Association
Attn: Barton D. Bonn, President
PO Box 1907
Jackson, MI 49204
Telephone 402-968-6936
E-mail address bonnbart@gmail.com
Copy to: Allen Miller apmillerlaw@aol.com

Respectfully submitted,

American Suntanning Association

By: /s/
Barton D. Bonn, President

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