**Sunshine Health Foundation**

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

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 as follows:

The entire webpage titled "Cancer Prevention and Control – State of the Science on Melanoma Prevention and Screening."

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

1. The information does not comply with OMB, HHS and CDC guidelines because it presents an inaccurate statement of the science. HHS and CDC guidelines call for the CDC to provide the American public with accurate statements of the science regarding human health.

2. It is well established in the science that sunburn is a highly significant risk factor for melanoma. In fact, it is the only UV-related risk factor for melanoma. Non-burning sun exposure, even in very large amounts, is not a risk factor for melanoma. There is not a single study showing that non-burning sun exposure increases the risk of melanoma; to the contrary, many studies have correlated non-burning sun exposure with reduced risk of melanoma.

3. The CDC webpage does not even mention the word "sunburn."

4. Sunburns are strong risk factors for cutaneous melanoma (OR 3.24; 95% CI, 2.19-4.66 for five sunburns per decade of life vs. no sunburns [1]; OR 1.83; 95% CI, 1.59-2.12 for many sunburns vs. few [2]; OR 2.03; 95% CI, 1.73-2.37 for history of severe sunburns vs. no history of severe sunburns [3]), but non-burning chronic sun exposure reduces or has a null effect on the risk of melanoma (OR 0.78; 95% CI 0.61-1.01 for highest vs. lowest quartile in the Genes, Environment and Melanoma Study in Australia [4]; OR 1.22; 95% CI, 0.82-1.81 for highest vs. lowest quartile of weekday sun exposure in Australian Melanoma Family study in Australia[4];

OR 0.91; 95%CI, 0.81-1.01 for high vs. low continuous sun exposure [2]; OR 0.95, 95% CI, 0.87-1.04 for more chronic sun exposure vs. less chronic sun exposure [3]; OR 0.86; 95% CI, 0.77-0.96 for high vs. low occupational sun exposure [5]). The molecular reason for the importance of sunburns was explained by biophysicist Frank de Gruijl of Leyden University in 2006 [6] and independently confirmed by Andrew White of Cornell University in 2017 [7]. Melanocytes are not replicating cells and sunburn or other similar trauma to the skin is required to stimulate their replication. It is only when cells divide that unrepaired, sun-caused DNA damage can be translated into potentially cancer-causing mutations. Sunburn generates a proliferative response in follicular melanocyte stem cells, the progeny of which migrate into the interfollicular epidermis where melanomas arise [6,7].

5. The only way to reduce the incidence of sun-related melanoma is to reduce the prevalence of sunburns. The current prevalence of sunburns in the United States is astonishingly high. According to the CDC's own data, the prevalence of sunburns increased from 32% of all adults in 1999 to 34% in 2004 [8] and up to 50% in 2012 [9]. Among adolescents aged 12-18 in 1999, 83% reported at least one sunburn in the previous summer and 36% reported three or more sunburns in the previous summer [10].

6. The incidence of melanoma has been increasing at a steady exponential rate from 1 case per 100,000 in 1935 when official records first started to be kept by the Connecticut Tumor Registry to 22 cases per 100,000 in 2016 (see Annex I). It is clear that the CDC's message that "Melanoma prevention includes not getting too much sun exposure and avoiding indoor tanning", which the CDC has been espousing for the past 50 years, is not working. What is "too much" sun exposure"? If avoiding indoor tanning was the solution, why was melanoma incidence increasing at the same rate both before and after the introduction of indoor tanning in about 1980?

7. Failure to tell the public that melanoma prevention requires avoidance of sunburn makes the CDC's melanoma prevention program ineffective. Telling the public that melanoma prevention includes not getting "too much" sun exposure is too vague to help the public understand what they need to do to reduce their risk of getting melanoma. Telling the public to "minimize" their sun exposure actually puts the public at increased risk of melanoma. Telling the public to "minimize" their sun exposure also puts the public at increased risk of being part of the populace that suffers from the nation's #2 public health problem, which is inadequate sun exposure [11]. The point that should be made about indoor tanning is that the public should avoid indoor burning, not indoor tanning. Tanning reduces the risk of sunburn and thus of melanoma.

8. The citation of Tripp et al. 2016 at the end of the page indicates that the CDC's incorrect understanding of the science of ultraviolet radiation and melanoma may have come from dermatologists. There are many incorrect statements of the science in Tripp et al. 2016.

**The CDC's incorrect understanding of the science and the resultant incorrect sun exposure advice to the American public is harming the public health and should be corrected as soon as possible.**

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[1] Dennis LK, Vanbeek MJ, Freeman LEB, Smith BJ, Dawson DV, Coughlin JA. Sunburns and Risk of Cutaneous Melanoma: Does Age Matter? A Comprehensive Meta-Analysis. Ann Epidemiol 2008; 18:614-627.

[2] Caini S, Gandini S, Sera F, Raimondi S, Fargnoli MC, Boniol M, Armstrong BK. Meta-analysis of risk factors for cutaneous melanoma according to anatomical site and clinico-pathological variant. Eur J Cancer 2009; 45:3054-3063.

[3] Gandini S, Sera F, Cattaruzza MS, Pasquini P, Abeni D, Boyle P, Melchi CF. Meta-analysis of risk factors for cutaneous melanoma: II. Sun exposure. Eur J Cancer 2005; 41:45-60.

[4] Vuong K, McGeechan K, Armstrong BK, AMFS Investigators, GEM Investigators, Cust AE. Occupational sun exposure and risk of melanoma according to anatomical site. Int J Cancer 2014; 134:2735-2741.

[5] Armstrong BK, Kricker A. The epidemiology of UV induced skin cancer. J Photochem Photobiol 2001; 63:8-18.

[6] van Schanke A, Jongsma MJ, Bisschop R, van Venrooij GMCAL, Rebel H, de Gruijl FR. Single UVB Overexposure Stimulates Melanocyte Proliferation in Murine Skin, in Contrast to Fractionated or UVA-1 Exposure. J Invest Dermatol 2005; 124:241-247.

[7] Moon H, Donahue LR, Choi E, Scumpia PO, Lowry WE, Grenier JK, Zhu J, White AC. Melanocyte Stem Cell Activation and Translocation Initiate Cutaneous Melanoma in Response to UV Exposure. Cell Stem Cell 2017; 21:1-14.

[8] MMWR Weekly Report June 1, 2007 / 56(21); 524-528;Table 1.

[9] MMWR Weekly Report May 11, 2012 / 61(18); 317-322.

[10] Geller AC, Colditz G, Oliveria S, Emmons K, Jorgensen C, Aweh GN, et al. Use of sunscreen, sunburning rates, and tanning bed use among more than 10,000 US children and adolescents. Pediatrics 2002; 109:1009-1014.

[11] Hoel DG, Berwick M, de Gruijl FR, and Holick MF. The risks and benefits of sun exposure. Dermato-Endocrinology, 8:1, e1248325, 2016.


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## The specific recommendation for correcting the information

The webpage should be revised to read as follows:

**"CDC**

### Cancer Prevention and Control

# State of the Science on Melanoma Prevention and Screening

Melanoma is on the rise in the United States, but we could prevent most cases.

Although incidence rates (new cases) of most cancers are going down overall, the incidence rates of melanoma, the deadliest kind of skin cancer, are still going up. However, most cases of melanoma could be prevented by preventing UV burns from the sun or indoor tanning. Research has clearly shown that sunburns raise melanoma risk.

Melanoma prevention requires avoiding sunburns. The current prevalence of sunburns in the United States is very high. Recent studies report that 50% of all adults and 83% of all adolescents had at least one sunburn in the past 12 months.

Proper application of sunscreen is important in avoiding sunburns when on the beach, at the pool or otherwise out in the sun for extended periods of time. Research shows that most people do not apply sunscreen properly and as a result get burned. The reason for this is that they do not follow the instructions printed on the sunscreen container. It is important to apply sunscreen in the recommended thickness and with the recommended frequency. Research shows that people who use sunscreen in accordance with the instructions avoid most sunburns.

UV burns from indoor tanning can be avoided by simply following the instructions required by the FDA to be printed on all tanning devices.

Regular screening is important to detect melanoma at an early stage. Outcomes are much better for melanoma treated at an early stage."

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

The Sunshine Health Foundation is dedicated to the purpose of educating the public on the risks and benefits of sun exposure. Accomplishment of this purpose requires correction of inaccurate information on the CDC's website concerning the risks and benefits of sun exposure.

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

The person making this complaint is the Sunshine Health Foundation, which is a charitable foundation. The mailing address, telephone number and e-mail address of the Sunshine Health Foundation is:

Sunshine Health Foundation
3500 Fairmount Street #417
Dallas, Texas 75219
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E-mail address allen.miller@sunshinehealthfoundation.org

Respectfully submitted,

Sunshine Health Foundation

By: _____
Allen Miller, President

**Annex I**
**Melanoma Incidence US 1935-2017**