

A Rebuttal
Do Cellphones Cause Brain Cancer? by Siddhartha Mukherjee
New York Times Magazine April 13 (on-line), April 17 (in print)

Do Cellphones Cause Brain Cancer? by Siddhartha Mukherjee contain many serious distortions of reality. Here is a partial list:

1. Ignoring a Swedish cellphone & cordless phone study while emphasizing the Interphone study of cellphones alone.

Major attention was paid to the cellphone-industry-funded Interphone Study on the risk of brain cancer from cellphone use only, while *ignoring* another large independently-funded Swedish studies led by Dr. Lennart Hardell on the risk from of brain cancer from cellphones and cordless phones.

2. Interphone Study distortions:
 - a. Distortion: “Interphone recruited participants in 13 countries, ran for a decade and included 5,117 brain-tumor cases and 5,634 controls.”

Correction: Data collection began in 2000 and ended in 2004. The weighted average time for data collection in the 13 countries was 2.6 years, not 10 years. In contrast the data collection time for the Swedish Hardell studies was 6 years.

- b. Distortion: “To start with, there was an apparently *decreased* risk of brain tumors in regular phone users, compared with rare users or nonusers. In other words, regular cellphone use seemed to reduce the risk of brain tumors. In stark contrast, very high cellphone use (measured as a user’s cumulative call time) seemed to increase the risk of a particular subtype of brain tumor. Needless to say, it is biologically implausible that these results are simultaneously true: how can regular cellphone use protect against cancer while frequent phone use increases risk? To most epidemiologists, including the authors of Interphone, the results point to a systemic flaw in the trial.”

Correction: Given systematic flaws, the Interphone results are highly plausible. The numerous flaws result in a systemic under-estimation of risk. Thus with “regular” users, defined as use for at least once a week for 6 months or more, we would not expect to find a risk. The “apparently *decreased* risk of a brain tumors,” better described as statistically significant *protection* from brain tumors, is an artifact caused by the systemic underestimation of risk. Yet with “very high” cellphone use (>1,640 cumulative hours of use, or >10 years of use), the systemic underestimation of risk is overcome. Which means that the risks reported for “very high” cellphone use, if the systemic underestimation were removed, would be even greater.

- c. Distortion: “In a substudy of Interphone, researchers embedded phones with special software to track phone usage. When this log was compared with the

“recalled” usage, there were wide and random variations: some users underreported, while others overreported use.”

Correction: Not stated was the conclusion of the validation (substudy) study. “For both number and duration of calls ... light users underestimated and heavy users overestimated their mobile phone use. ... In particular, it is expected that larger overestimation and random error in heavy users will lead to an *underestimation of tumour risk* in this group of users ...” [emphasis added].

In other words, while human memories are indeed imperfect this validation study suggests that the resultant error would be an underestimation of risk. Once again, we see for the Interphone study, any risks that are reported can be expected to be even larger if recall bias was removed.

- d. Distortion: During the years that the Interphone data was being collected *cordless phone use was more prevalent than cellphone use*. The *secret*¹ Interphone protocol requires that all subjects (cases and controls) be asked about their cordless phone and their cellphone use. Cordless phones, based on cellphone technology, were incredulously treated as a non-exposure. Indeed, subjects who used a cordless phone, but did not use a cellphone, were treated as unexposed. For subject, treated as exposed because they used cellphone, their additional exposure from cordless phone use was ignored. This too would result in an underestimation of risk.

Correction: The Swedish studies which treated cordless phones and cellphones as an exposure, re-evaluated their results by using the Interphone’s dubious method of treating cordless phone use as a non-exposure. This resulted in a median reduction of risks of 8% compared to what the Swedish team had reported when cordless phone were treated as an exposure.

3. Experts Panel’s 2005 Review

All 4 authors of this “Review” have been strongly associated with product defense. Of particular interest, whereas most science papers list funding sources, this paper was mute about its source of finding. One author was (and remains), an employee of Exponent Inc., “one of the premier firms in the product defense business.”² Besides serving as a product defense business for the cellphone industry, Exponent Inc. has defended the asbestos, the petroleum, the tobacco, the chromium, the aerospace, the beryllium, the lead, and automobile industries.

- a. Distortion: “In 2005, a panel of experts, including a biomedical engineer, an epidemiologist, a genetic toxicologist and a radiation biologist, published a

¹ The Official Interphone Protocol never mentions cordless phones, but single country Interphone studies and an email from an Interphone Principal Investigator report that they were required to ask all subjects about their cellphone use, thus the term “secret protocol.”

² David Michaels (now the head of OSHA), *Doubt Is Their Product, How Industry’s Assault on Science Threatens Your Health*. Page 47, Oxford University Press. 2008.

review of nearly 1,700 scientific papers on the cellular effects of radiation emitted by phones.”

Correction: These 1,700 papers were compiled by the electrical industry’s professional organization, the Institute of Electrical and Electronic Engineers (IEEE) subcommittee, which wrote the exposure limits adopted by the Federal Communications Commission (FCC). The premise of the IEEE/FCC exposure limits is that the *only short-term biological effects from cellphone microwave radiation are heating* (long-term effects, such as cancer are excluded from consideration). A large volume of science literature contradicts this premise (see below). The very selection of what was included into, and what excluded from, this database was made by a group with an inherent conflict-of-interest.

- b. Distortion: “In the expert panel’s 2005 review, the authors summarized the evidence: “There is little theoretical basis for anticipating that [RF](#) energy [from cellular phones] would have significant biological effects at the power levels used by modern mobile phones and their base station antennas.””

Correction: For the IEEE subcommittee to find otherwise would require that they contradict their very premise on which its exposure limits are based. As discussed in 3a above, the science literature contradicts the IEEE subcommittee’s exposure limit premise. The BioInitiative Report lists some 2,000 papers that found what the IEEE denies (<http://www.bioinitiative.org/>).

4. Accusations of Fraud Is An Industry Technique to Discredit Researchers

- a. Distortion: “The most striking study linking cellular phone radiation to DNA damage, published in 2005 by researchers from the Medical University of Vienna, has recently been embroiled in even deeper scientific controversy: researchers studying the data intensively have argued that the original study is fraudulent.”

Correction: Almost immediately when this false report appeared in Science Magazine, there was a report that that this was probably a spurious charge, “‘Science’ Magazine Gets It Wrong On DNA Breaks.” Three months later Science Magazine conceded they had made a mistake when a Chinese study found similar results.

[http://www.microwavenews.com/docs/mwn.11\(11\)-08.pdf](http://www.microwavenews.com/docs/mwn.11(11)-08.pdf)

“They speak of fraud — which did not happen — to be able to deny the elephant in the room.”

http://www.pandora-foundation.eu/downloads/pandora_press-release_muv_2011-01-31.pdf

The “study linking cellular phone radiation to DNA damage, published in 2005 by researchers from the Medical University of Vienna” was part of the

European Union's roughly \$3 million, multi-center in vitro REFLEX-study of human cells exposed to cellphone microwave radiation. Professor, Franz Adlkofer, Coordinator REFLEX-study wrote concerning these false allegations, "Within the REFLEX-Study which was planned and coordinated by me and financed by the European Union from 2000 to 2004 it was shown by the participating research group of Prof. Hugo Ruediger at the Medical University of Vienna (MUV) that mobile phone radiation owns the potential to damage the genome of isolated human cells. About four years after the completion of the study Prof. Wolfgang Schuetz, the rector of the MUV and Prof. Alexander Lerchl, head of the Committee for Non-ionizing Radiation in the German Commission on Radiological Protection, all of a sudden claimed that these findings would with the highest probability be the result of scientific misconduct and should, therefore, be removed from the scientific literature. This absolutely unfounded allegation has in the meantime been rejected by two commissions for scientific integrity. It can now be taken for sure that the two gentlemen pursued the goal to most elegantly destroy unpleasant scientific data by slandering in the interest of the mobile phone industry."

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