

The Interphone Study: A Call for Cell Phone Health Warnings

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“The Interphone study substantiates the need for mandating health warnings about cell phones.”

- The Interphone study is flawed in ways that biased results against finding harmful effects. And yet, it still found harmful effects. How much larger would those effects have been, or what additional harmful effects would have been identified if the study had been unbiased?
- Do we really need to have evidence beyond any doubt before we are willing to take steps to protect the public from potential harm?

1. The new report of the Interphone study combines brain tumor data from all 16 Interphone study centers in 13 nations.¹ The report contains from 57-69% of the brain tumor (meningioma vs. glioma) cases that were published in earlier papers. The study used case-control methodology in which identified cases with brain tumors were compared to cases without brain tumors and both groups were asked about their cell phone use retrospectively.

Methodologic problems with the study bias the results to make them appear as if cell phone use reduced brain tumor risk.² The authors acknowledge this is implausible and likely due to problems in conducting the study.

The most serious problem was selection bias. Whereas 64-78% of the identified brain tumor (glioma vs. meningioma) cases participated in the study, only 53% of the selected control cases participated. Moreover, the controls who participated were heavier cell phone users than those who did not. Thus, when comparing the controls to the cases, the results are biased toward finding reduced tumor risk for cell phone users

The authors tried to correct for selection bias with an innovative method (see Appendix 2 of the paper). They compared regular cell phone users who used their phones less than 2 years with those who used them 2 or more years and found that risk of glioma increased from 168% to 218% with increasing years of cell phone use.

In the U.S., gliomas account for one-third of all tumors that originate in the brain and over half of all brain tumors in children affecting about 6 per 100,000 people each year or 18,000 people.³

¹ The Interphone Study Group. Brain tumour risk in relation to mobile telephone use: results of the INTERPHONE international case-control study. *International Journal of Epidemiology*. Published online May 18, 2010. DOI: 10.1093/ije/dyq079.

² "Cellphones and Brain Tumors: 15 Reasons for Concern; Science, Spin and the Truth Behind Interphone," August 25, 2009. URL: <http://www.radiationresearch.org/pdfs/15reasons.asp>

Based upon the above analysis by the Interphone investigators, cell phone use may increase gliomas by 12,000 to 21,000 cases per year in the U.S.

2. Despite the study's bias against finding tumor risk, the study found significantly increased risk of glioma among those who used cell phones at least 1,640 hours in their lifetime. These individuals were 40% more likely to get glioma, and almost twice as likely to get glioma on the side of their head where they placed their cell phones.

Although 1,640 hours of cell phone use may sound substantial, the average user in the U.S. today could fall into this high risk use category after about 13 years of use.

3. The study collected data between the years 2000 and 2004 when cell phone use was not as common as it is now. The typical study participant used his phone only 75-100 hours (meningioma vs. glioma) in his lifetime or 2-2.5 hours a month. In contrast, the typical person in the U.S. today uses his phone about 2.5 hours a week—about 4 times as much and will exceed the lifetime use of the typical Interphone study participant in less than a year. Thus, brain tumor risk may be greater today as people use their cell phones much more now. On the other hand, use of corded headsets, speakerphones and texting has increased in recent years which may help to reduce brain tumor risk over time.

4. The Interphone study did not include children or adolescents so it fails to inform us about cell phone risk in the developing brain. We know from other research that cell phone radiation penetrates deeper in children's brains so there is reason to believe they may be more vulnerable to this type of radiation than adults.

5. The Interphone study substantiates the need for mandating health warnings about cell phones. Although we need more research about the health risks of cell phone use, my colleagues and I believe that we have sufficient evidence to warn the public about the need to adopt simple methods to reduce the harms associated with cell phone use. Our recently published opinion piece in the *San Francisco Chronicle* explains our rationale for this position⁴ based upon our published review of 23 case-control studies including eight of the earlier Interphone studies.⁵

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³ "CBTRUS. CBTRUS Statistical Report: Primary Brain and Central Nervous System Tumors Diagnosed in the United States in 2004-2006. Central Brain Tumor Registry of the United States, Hinsdale, IL. 2010. URL: <http://www.cbtrus.org/2010-NPCR-SEER/CBTRUS-WEBREPORT-Final-3-2-10.pdf>

⁴ Moskowitz, J.M. Open Forum. "Government must inform us of cell phone risk." *San Francisco Chronicle*. April 28, 2010. URL: <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2010/04/28/EDMB1D58TC.DTL>

⁵ Myung SK, Ju W, McDonnell DD, Lee YJ, Kazinets G, Cheng CT, Moskowitz JM. Mobile phone use and risk of tumors: a meta-analysis. *Journal of Clinical Oncology*. 2009 Nov 20; 27(33):5565-5572. Epub 2009 Oct 13. URL: <http://www.ncbi.nlm.nih.gov/pubmed/19826127>