

## Industry-Funded 'Interphone' Brain Cancer-Cell Phone Study Design Proven To Greatly Underestimate Risk Of Brain Tumors

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A Letter to the Editor in the International Journal of Epidemiology (December 17, 2010) by Dr. Lennart Hardell and team at the University Hospital, Orebro, Sweden, called "Re-analysis of risk for glioma in relation to mobile telephone use: comparison with the results of the Interphone international case-control study", confirms that design flaws in the Interphone study published in May 2010 caused the risk of brain tumors to be underestimated.

The Hardell et al research on brain tumors, published in 2006, showed that the risk of malignant brain cancer from use of a digital cell phone for over 10 years increased by 180%, but the Interphone study results published last May only showed a 118% increased risk of brain cancer. This discrepancy has never been fully explained until now, and the risks that were found in the Interphone study were downplayed.

The Hardell team decided to reanalyze their own data on brain tumor risk using the more limited protocol used by the Interphone study i.e. considering subjects who were between 30-59 years instead of 20-80 years used by the Hardell team, and classifying any subject who used a cordless phone as 'unexposed', as the Interphone study had inexplicably done.

When these two adjustments to the study's design were made, the Hardell team obtained results that were statistically the same as the Interphone results. This demonstrates the lesser risk of brain cancers (gliomas) from cell phone use reported in the Interphone study was a result of the Interphone study's design flaws. Were a wider age range used, as in the original Hardell research (ages 20 to 80), and subjects properly classify as 'exposed' to microwave radiation if they used portable (including cordless) phones emitting microwave radiation, the risk of brain tumors would be as was found in the original Hardell research: a 180% increased risk of malignant brain cancers.

Hardell et al Re-Analysis: Hardell L, Carlberg M, Hansson Mild K. Re-analysis of risk for glioma in relation to mobile telephone use: comparison with the results of the Interphone international case-control study. Int J Epidemiol 2010; doi:10.1093/ije/dyq246

Technical Commentary on the Hardell Team's Re-Analysis by L. Lloyd Morgan, B.S., Senior Research Fellow, Environmental Health Trust and Lead Author, "Cellphones and Brain Tumors: 15 Reasons for Concern" with the International EMF Collaborative

### Key Points to Appreciate:

- \* The independently funded Hardell re-analysis study confirms the flaws of the industry-funded Interphone study and confirms that cell phones cause brain tumors.
- \* No longer can Interphone researchers claim 'error and biases' in their work prevent a 'causal interpretation', thereby diminishing the gravity of the industry-funded study's results that did show risk, and giving pause to public health officials globally.
- \* With the results of this re-analysis study by Hardell et al, we now know with certainty that for greater than 10 years of use, and more than 1,640 hours of use, cell phones cause brain tumors, as was shown by Hardell et al in 2006.
- \* The Hardell re-analysis of the risk of glioma using the Interphone design protocol also re-confirms the conclusions from a meta-analysis of 23 case-control studies on mobile phones and tumors (brain, eye, testicular, non-Hodgkin's lymphoma and salivary), involving 37,916 participants published in the Journal of Clinical Oncology in October 2009. This meta-analysis found high quality studies resulted in a statistically significant risk of tumors (such as the Hardell studies), and poor quality studies result in statistically significant protection from tumors, such as the Interphone study.
- \* The new re-analysis also demonstrates that the published Interphone study seriously misrepresents reality when it comes to portraying the risk of brain tumors from cell phone use.

\* At the same time, it illuminates how scientific data can be massaged to paint a more favorable picture of risk in line with an industry's commercial interests. Funding bias is a well-recognized problem in science. When the funds come from a source with a financial conflict-of-interest in the result, the likelihood of the study not finding a risk is much higher than when the funds come from a source with no financial conflict-of-interest.

\* The revelations in the recently released Hardell re-analysis underscore the pressing need for all of the Interphone study data to be made public. Independent scientists need access to the data, including results for glioma, meningioma, acoustic neuroma parotid gland tumor, and tumors within the 20% of the volume of the brain irradiated by cell phones. Otherwise, this \$30+ million dollar, 13-country, 12+ year, Interphone research undertaking will have been a waste, serving only to confuse and mislead public health officials, instead of serving public health.

Bravo to the Hardell team for explaining the discrepancy in reported risk for brain tumors from cell phone use between his team's research and that of the Interphone study, and confirming the causal association between cell phone use and brain cancer.

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[Original Hardell Research](#) (2006)

[Expert Technical Commentary](#) on the Hardell Team's Re-Analysis of Glioma Risk Using the More Limited Interphone Study Protocol by L. Lloyd Morgan, B.S.

[Video Presentation](#) by Lloyd Morgan on the Many Interphone Study Design Flaws Underestimating Risk

VIDEOS from Commonwealth Club of California, November 18, 2010

Presentations on Brain Tumor Risk by [Joel Moskowitz, PhD](#) & [L. Loyd Morgan, B.S.](#)

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