

Press Release

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EMBARGOED UNTIL 12:00 a.m. June 15 (New York Time)

Risk of Brain Cancer from Cell Phone Use Underestimated by At Least 25% in Interphone Study, According to Scientific Presentation Today at the Bioelectromagnetics Society

New York, June 15, 2010. According to a presentation today by L. Lloyd Morgan, B.Sc. at the 32nd Annual Bioelectromagnetics Society meeting in Seoul, Korea, the risk of brain tumors from cell phone use in the Interphone study is significantly higher than was recently reported in the *International Journal of Epidemiology*.

The poster report, called “*Re-evaluation of the Interphone Study: Applications of a Correction Factor*” <http://sn.im/xd78f> was prepared by L. Lloyd Morgan, B.Sc. of Berkeley, CA, Senior Research Fellow at the Environmental Health Trust, USA; Michael Kundi, Professor of Occupational Health and Epidemiology and head of the Institute of Environmental Health, Medical University of Vienna, Vienna, Austria; and Michael Carlberg, M.Sc. of the Department of Oncology, University Hospital, Örebro, Sweden. The re-evaluation applies a correction factor to Interphone study results, calculated using the geometric mean value of the published odds ratios for less than five years of cell phone use.

Ironically, the most common finding of the Interphone study is that use of a cell phone ‘protects’ the user from a brain tumor. However, adjusting for the systematic underestimation of risk from the Interphone study’s design flaws, as revealed by protective odds ratios, the authors of “Re-evaluation of the Interphone Study” conclude that the Interphone Study underestimates overall results by at least 25%.

The May 17, 2010 published Interphone study results did indicate risk of brain tumors after 10 years, but only in Appendix 2. However this re-analysis shows that the overall uncorrected Interphone study results substantially underestimate the risk for malignant brain tumors from cell phone use.

Lloyd Morgan, B.Sc., says, “In one Interphone study, by Lahkola et al (2008), which included results from the U.K. and four Scandinavian countries, the published Interphone results found virtually no increased risk of meningiomas. But when our correction factor was applied, using the mean value of the original odds ratios, not only was risk of meningioma found, but for **every year** of cell phone use, a person’s risk of meningioma increases by 24%. For every 100 hours of cell phone use there was a 26% increased risk of meningioma, a tumor of the lining of the brain, the meninges.”

Morgan says, "What we have discovered indicates there is going to be one hell of a brain tumor pandemic unless people are warned and encouraged to change current cell phone use behaviors. Governments should not soft-peddle this critical public health issue but instead rapidly educate citizens on the risks. People should hear the message clearly that cell phones should be kept away from one's head and body at all times."

In another Interphone study example, by Hepworth et al (2006) in the U.K., Morgan says the original Interphone results found a 24% increased risk of glioma, from 'regular' use on the same side of the head as the phone was used. When results were re-adjusted, applying the correction factor, the increased risk of glioma becomes 55% for 'regular users', defined as someone who uses a cell phone only at least one time a week for more than six months. After 10 or more years of use, the risk for glioma, a malignant brain tumor, among 'regular' users in this study doubled.

Recalculated Risk of Brain Tumors for 6 of the Interphone Studies

The table below, from "Re-evaluation of the Interphone Study: Applications of a Correction Factor" (<http://sn.im/xd78f>), recasts results from six of the Interphone studies, correcting for the bias in the odds ratios. It demonstrates significantly increased risk for meningiomas, brain cancers and acoustic neuromas from cell phone use compared to the Interphone results published in May 2010 in the *International Journal of Epidemiology* and the 14 previously published studies.

Citation	Exposure Description	Published			Corrected		
		OR	95% CI	Calculated p-value	OR	95% CI	Calculated p-value
Lahkola et al. 2008 [17]	Risk of meningioma per years of use	0.99	0.96 1.01	0.43	1.24	1.07 1.43	0.0033
	Risk of meningioma per 100 hours of use	1.005	1.001 1.010	0.026	1.26	1.09 1.45	0.0014
	Risk of meningioma per 10,000 calls	1.00	0.96 1.05	1.00	1.25	1.08 1.45	0.0029
Interphone Study Group 2010 [13]	Risk of meningioma for ≥10 years of ipsilateral use	0.88	0.52 1.47	0.62	1.10	0.65 1.87	0.72
	Risk of meningioma for ≥10 years of contralateral use	0.58	0.29 1.16	0.12	0.73	0.36 1.45	0.36
	Risk of brain cancer* for ≥10 years of ipsilateral use	1.21	0.82 1.80	0.33	1.51	1.00 2.3	0.050
	Risk of brain cancer* for ≥10 years of contralateral use	0.70	0.42 1.15	0.16	0.88	0.22 3.48	0.85
Hepworth et al. 2006 [8]	Risk of brain cancer* for "regular" ipsilateral use	1.24	1.02 1.52	0.031	1.55	1.22 1.97	0.00036
	Risk of brain cancer* for ≥10 years of ipsilateral use	1.60	0.92 2.76	0.27	2.00	1.15 3.49	0.015
Lahkola et al. 2007 [18]	Risk of brain cancer* for 5 to 9 years of ipsilateral use	1.10	0.89 1.35	0.36	1.38	1.07 2.45	0.012
	Risk of brain cancer* for 5 to 9 yrs of contralateral use	0.74	0.59 0.92	0.0067	0.88	0.68 1.12	0.30
Lönn et al. 2004 [3]	Risk of acoustic neuroma for ≥10 yrs since first ipsi use	3.9	1.6 9.5	0.0027	4.9	2.0 12	0.00057
	Risk of acoustic neuroma for ≥10 years since first contra use	0.9	0.2 3.1	0.88	1.1	0.3 4.5	0.87
Schoemaker et al. 2008 [19]	Risk of acoustic neuroma for ≥10 years of ipsilateral use	1.8	1.1 3.1	0.023	2.25	1.33 3.81	0.0025
	Risk of acoustic neuroma for ≥10 years of contralateral use	0.9	0.5 1.8	0.74	1.13	0.6 2.1	0.72

Bold indicates statistically significant risk estimates. Font size increases by one for every order of magnitude decrease in p-value.

* Glioma

Download Table <http://sn.im/xd7a5>

Michael Kundi, Professor of Occupational Health and Epidemiology at the Medical University of Vienna, says, "The Interphone study, the largest epidemiological investigation on brain tumors ever conducted, was thought to give the final answer to the issue of a potential brain tumor risk from mobile phone use. It turned out to raise more questions than providing answers. Flaws in the design and problems during conduct of the study led to biased estimates of the risk. We tried to assess the magnitude of this bias and correct the most important risk estimates. It turned out that after correction the risk from mobile phone use is quite substantial and warrants precautionary activities."

Michael Carlberg, M.Sc. of the Department of Oncology, University Hospital, Örebro, Sweden, says, "The original Interphone results have severe problems with bias which results in underestimations of risks. Applying the correction factor shows that the actual risk is higher than the originally presented odds ratios, with several statistically significant results."

The design flaws in the Interphone study protocol were exposed last August in the report, "Cellphones and Brain Tumors: 15 Reasons for Concern, Science, *Spin and the Truth behind Interphone*", co-authored by Morgan and endorsed by over 40 leading scientists worldwide (<http://snurl.com/wdgbd>). In May 2010, on publication of the first pooled Interphone study results, 5 ½ years since data collection was finished, a preliminary technical analysis was prepared called Counter-View of the Interphone Study (<http://sn.im/x80he>).

The poster presented at today's Bioelectromagnetics Society meeting in Seoul, Korea quantifies the impact of the systematic skew toward underestimation of risk of brain tumors from the design flaws, evidenced by the protective odds ratios. Lloyd Morgan, B.Sc., its lead author, says, "Re-evaluation of all Interphones studies using this correction factor is now called for and the new results should be re-published. In addition, in cases where Interphone data has still not yet been published, such as studies assessing risk of getting an acoustic neuroma or salivary gland tumor from cell phone use (tumors closer to where a cell phone is placed against the head), the raw data should immediately be released so other scientists can now properly analyze the data."

The Bioelectromagnetics Society, in its journal *BioElectroMagnetics*, publishes independently peer-reviewed research and review articles on experimental, theoretical, and clinical aspects of the interaction and application of electromagnetic fields and waves in biological systems. This week's agenda at The Bioelectromagnetics Society's Annual Meeting in Seoul, Korea can be found at: <http://www.bioelectromagnetics.org/bems2010/>

Download "Re-evaluation of the Interphone Study: Applications of a Correction Factor" Here (<http://sn.im/xd78f>) by Lloyd Morgan, B.Sc., Michael Kundi, Ph.D (med.habil) and Michael Carlberg, M.Sc.

Audio Interview with Lloyd Morgan <http://sn.im/xd8ex> on the poster presented at the Bioelectromagnetics Society meeting, "Re-evaluation of the Interphone Study: Applications of a Correction Factor"

Audio Interview with Lloyd Morgan Reviewing the 6 Interphone Studies To Which the Correction Factor Has Been Applied <http://sn.im/xd8ex>

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