

**Support
Microwave News,
the independent
source for news and
opinion on the health
effects of EMFs and
RF radiation**

Microwave News is now distributed free of charge, so we need your support more than ever. Please send us what you can. See the form on p 3.

Thank you!

MICROWAVE NEWS • ISSN 0275-6595 •
155 East 77th Street, New York, NY 10075 •
(212) 517-2800 • Fax: (212) 734-0316 •
E-mail: <mwn@pobox.com> • Web:
<www.microwavenews.com> • Editor and
Publisher: Louis Slesin, PhD; Assistant
Editor: Danny Nassre • Copyright © 2007
by Louis Slesin • Reproduction in any form
is forbidden without written permission.

Interphone 2.0: Brain Tumors And Occupational EMF Exposures

October 3... Interphone 2.0 is underway. This second phase of the **Interphone** project is investigating the possible link between brain tumors and occupational exposures to various types of EMFs—not just those from mobile phones—as well as to chemicals.

Like its predecessor, the new Interphone study is being run by Elisabeth Cardis, who heads the radiation group at the International Agency for Research on Cancer (**IARC**) in Lyon, France. This time, however, the U.S. is participating. In fact, the U.S. National Institutes of Health is paying for the entire \$1.4 million, three-year project.

Joe Bowman at **NIOSH** in Cincinnati is leading the American contingent. Bowman has developed a job-exposure matrix, which can help translate the job histories collected in the Interphone questionnaires into indices of exposure to chemicals and EMFs, at both power-line and RF frequencies. Bowman, together with collaborators at the University of Washington, Seattle, recently published a detailed **description** of the exposure matrix. (An earlier version was applied in a **study** of neurodegenerative diseases.) A second job-exposure matrix developed in Finland will also be used.

While 13 countries are participating in the original Interphone study—which got underway in 2000 and is still not completed—only nine of them are working on the occupational study: Australia, Canada, France, Germany, Israel, Italy, New Zealand, Sweden and the U.K. Because the U.S. was not part of the original project, none of the cases or controls in the new study is American.

Interphone 2.0 is the largest study of brain tumors and occupational exposures to EMs and chemicals ever undertaken.

Where's Interphone?

October 9... Why is the Interphone study not finished yet? “The interpretation is not straightforward,” Elisabeth Cardis told *Microwave News* in an interview from her office at **IARC** in Lyon, France. The data are “very difficult to interpret because of the potential problems of recall and selection bias,” she explained.

Cardis is leading the **Interphone** project, an international epidemiological study investigating the possible link between the use of cell phones and brain tumors. The study was originally slated to be completed years ago.

Asked when the paper with the combined data from all 13 countries would be out, Cardis replied, “Soon, I hope.”

(continued on p.2)

IARC has posted an **update** on the study on its Web site. It includes a table with the key results from individual countries as well as those from two combined analyses. The update also provides a list of the more than 30 papers published by various members of the Interphone team.

The update addresses the most widely discussed—and provocative—findings: The significantly increased risks of gliomas and acoustic neuromas, by up to 40% and 80%, respectively, among those who used mobile phones for ten years or more on the side of the head the tumors developed. These results came out of pooled analyses of data from five northern European countries (see our **January 22 post**). Cardis noted that these elevated risks “might either reflect a true causal association or be artifactual, related to recall bias among the cases.”

One unexpected finding that has emerged from a number of Interphone study groups is that using a cell phone appears to protect against developing a tumor. (See, for example, the letters from Sam Milham, a Washington state epidemiologist, to the *American Journal of Epidemiology* and the *British Journal of Cancer*.) This result, Cardis explained, may be due to selection bias, that is, the controls and/or the cases may not be completely representative. “It’s hard to believe the use of a phone for a few minutes a month could be protective against brain cancer,” Cardis said. If selection bias is in fact at work, it may mean that the published results underestimate the true cancer risks.

The analysis of the Interphone data continues, and it may provide some clarification, especially with respect to long-term users. “Manuscripts presenting results of the international analy-

ses, based on much larger numbers of long-term and heavy users, are in preparation,” the IARC update states, adding that, “More detailed analyses are also underway, focusing on more precise localization of tumors using 3-dimensional radiological images, and on the analysis of the effect of RF exposure at the location of the tumor.”

Many Motorola Phones Have High SARs

October 19... The five U.S. cell phones with the highest **SARs** are all made by Motorola, according to a **list** compiled by CNET. One Moto phone, the **V195s** for T-Mobile, has an SAR of 1.6 W/Kg, which is the maximum level allowed by the **FCC** (this model is not included on Motorola’s **SAR Web site**). On the other hand, Moto’s Razr **V3x** had the second lowest SAR (0.14 W/Kg) on CNET’s **list**—though this model is not available in the U.S. Motorola’s **Web site** gives the V3x as having a maximum SAR of 0.58 W/Kg. The discrepancy between the two SARs may be due to the fact that in Europe SARs are averaged over 10g, while the FCC still requires them to be averaged over 1g (CNET does not specify the averaging volume). The same phone can have a 1g SAR that is two-to-three times higher than its 10g SAR. Don’t forget that SARs measured in the lab may not give a complete indication of a user’s actual exposure. Where you use the phone (inside vs. outside, urban vs rural) and how close to your head you put the phone are also important factors.

GSM Radiation Disrupts Sleep: An Emerging Low-Level Effect

October 29... The ability of mobile phone radiation to affect sleep is emerging as a robust low-level effect.

A team led by Bengt Arnetz has reported that a three-hour exposure to GSM radiation at 1.4 W/Kg an hour before bed can disrupt sleep. This supports the findings of **Peter Achermann** of the University of Zurich and **Sarah Loughran** of the Brain Sciences Institute at Australia’s Swinburne University.

Arnetz, who has appointments at both **Wayne State University** in Detroit and Sweden’s **Uppsala University**, also found that the GSM radiation can cause headaches, a not infrequent complaint among cell phone users. In a paper presented at the **Progress in Electromagnetics Research Symposium (PIERS)** in March in Beijing (**available online**), Arnetz concludes that the radiation affects “the components of sleep believed to be important for recovery from daily wear and tear.” Or to put it more simply, using a cell phone can lead to stress.

If you want a good night’s sleep, don’t spend too long on your cell phone before you go to bed, Arnetz advised the readers of *Expressen*, one of the two major Swedish tabloids. The story was headlined “**The Mobile Phone Spoils Your Sleep**” (October 25).

These new results, while not yet formally published in a peer-reviewed journal, should be taken seriously. First and foremost, this is the third independent finding of an RF effect on sleep—though they are not exact replications, they do complement each other. Second, Arnetz used an average SAR of 1.4 W/Kg, which is less than the current U.S. standard of 1.6 W/Kg, and well below the ICNIRP limit of 2.0 W/Kg, used all over Europe. Third, the mobile phone industry (**MMF**) sponsored the study and **IT’IS** helped design the exposure setup, as it has in most other MMF-funded studies. IT’IS’ **Niels Kuster** has also long collaborated with Achermann. And finally, because Arnetz has a reputation for being an EMF skeptic. In the early 1990s when EMF emissions from computer terminals were a major concern to office workers, Arnetz blamed the mechanization of the modern office environment—or what he called

“**technostress**” —for their health complaints, discounting a possible EMF connection.

Over the last eight years, Achermann has published a **series of papers** on the effects of EMFs on sleep. Loughran’s **paper** was published in *NeuroReport* in 2005. See also a **presentation** by Arnetz’s group from the August PIERS meeting in Prague.

Web Site for GSM-Sleep Study

October 30... One of our alert readers has pointed out that the sleep study we wrote about yesterday has its own **Web site**. It provides details on members of the research team, their scientific advisors and the study design. The home page includes this message: “Just the increased worry [over RF radiation health risks] might lead to adverse health effects.” Maybe so, but given the results recorded so far, this should no longer be a primary concern. We need to redouble our efforts towards getting a better understanding of the health effects of RF energy.

Fourth GSM-Sleep Replication Study

October 30... Another reader has brought to our attention a **fourth paper** showing that GSM radiation can alter sleep. James Horne and coworkers at the **Sleep Research Centre** at Loughborough University in the U.K. have reported that very weak (0.133 W/Kg) signals can delay sleep onset. The new work, published in June, raises some particularly important—and thorny—issues regarding the biological effects of different ELF modulations on the 900 MHz GSM pulses. We’ll leave those for another time,

Please Help Keep Microwave News On the Web

Enclosed is My Contribution of

\$25.00 \$50.00 \$100.00 \$250.00 \$500.00 \$1,000.00 Other \$ ____

Suggested Contributions: Individuals \$50–\$100; Corporations and Institutions \$250–\$500.

**Microwave News, 155 East 77th Street, Suite 3D, New York, NY 10075, USA
☎: +1 (212) 517-2800, Fax: +1 (212) 734-0316; E-mail: <mwn@pobox.com>**