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155 East 77th Street, New York, NY 10075 •
(212) 517-2800 • Fax: (212) 734-0316 •
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No Eye Cancer from Cell Phones At Least for First Ten Years

German Team's Reversal

January 16...Cell phones do not increase the risk of developing eye cancer, at least for the first ten years of use, according to a group of German researchers led by **Andreas Stang** at the Martin-Luther-University of Halle-Wittenberg in Halle. This marks a reversal. Eight years ago, Stang reported a possible association in a smaller and less detailed study (see *MWN*, **J/F01**, p.9).

This new result is “inconsistent” with his first study, Stang **writes** in the *Journal of the National Cancer Institute (JNCI)*. That **earlier study** had only 118 cases of melanoma of the eye and used a “crude exposure assessment” while the new study has 459 cases, with a “very detailed exposure assessment,” Stang adds. A questionnaire developed by the **Interphone** study group was used to assess mobile phone use. The *JNCI* paper was posted on the journal’s Web site on January 13 and will appear in its January 21 issue.

Most other epidemiological studies have not found cancer risks after less than ten years of mobile phone use, though there are indications that longer and more intense cell phone use might lead to a higher incidence of glioma, acoustic neuroma and parotid gland tumors.

Stang declined to offer an opinion about possible long-term melanoma risks. “It would only be wild speculation,” he told *Microwave News*. But, he added, “As long as we do not have empirical data it would be wise to be cautionary.” Stang and **Karl-Henz Jöckel**, his colleague and coauthor, believe that “we should be especially careful with children.”

Peter Inskip, an NCI epidemiologist, agreed that the risks from ten or more years of cell phone use are still open. But, in an interview, Inskip noted that: “I know of no reason to *expect* there to be an elevated risk for longer observation periods” [his emphasis].

In a **commentary** that accompanied Stang’s 2001 paper, Inskip argued for a “cautious interpretation” of the melanoma risk. Inskip cited the small size of Stang’s study, the rough exposure assessment as well as lack of attention to possible confounders. When asked about Stang’s new finding, Inskip stated that he appreciated having “stronger information” in the published literature.

A year after Stang’s first paper, Danish–U.S. researchers led by

(continued on p.2)

Chrisofer Johansen of the Danish Cancer Society and John Boice of the International Epidemiology Institute **reported** that they could not find any support for an elevated risk of malignant melanoma of the eye among Danish mobile phone users.

The **new paper** may be downloaded at no cost. Stang explained that he and Jöckel had paid the journal's fee to allow open access: "We wanted to be sure that everybody in the world has the chance to read the paper."

Children and Cell Phones: Where Is ICNIRP?

January 23...The new year brought two fresh initiatives to protect children from cell phone radiation. On January 7, the Finnish Radiation and Nuclear Safety Authority (STUK) **recommended** that parents limit their children's use of mobile phones and, on the same day, the French government **announced** a series of environmental health **proposals** which includes a ban on cell phones designed specifically for children younger than six and of advertising that promotes their use among those under 12.

STUK has now joined its counterpart radiation protection agencies in a number of other European countries—these include Belgium, France, Russia, Sweden and the U.K.—to encourage precautionary policies for the use of phones by children. Germany's Office of Radiation Protection (BfS) has also **advised** that all cell phone users exercise prudence. The U.K. Department of Health was the first to advise caution back in 2000 in response to a recommendation from the **Stewart expert panel**. The following year, the head of Germany's BfS advised that, "Parents should keep their children away from this technology as much as possible" (see *MWN*, **J/A01** p.6).

In contrast to all this activity, the lackadaisical approach

of the International Commission on Non-Ionizing Radiation Protection (**ICNIRP**) is striking. Some 40 countries, many of which have only limited expertise in RF radiation health effects, look to the Commission for advice. Yet, ICNIRP has been silent for ten long years.

Three members of ICNIRP are associated with the same radiation protection agencies that have recommended caution, but all three appear to be sitting on their hands: **Rüdiger Matthes**, the vice chair of the commission leads the group on Non-Ionizing Radiation Dosimetry at the BfS; HPA's **Richard Saunders** was the former head of the Non-Ionizing Radiation Effects Group at the U.K.'s Health Protection Agency (**HPA**) and still works at the HPA part-time; and **Tony Swerdlow**, the chair of HPA's Advisory Group on Non-Ionizing Radiation. Clearly neither Saunders nor Swerdlow is following the lead of **Sir William Stewart**, the chairman of the HPA, who has reiterated the need for precaution many times over the years, as he did at last September's Radiation Research Conference.

ICNIRP's Bernard Veyret of the University of Bordeaux seems similarly out of step with France's health department, which, early last year, **recommended** that children not use cell phones after its Interphone group **pointed** to tumor risks among long-term users. More recently, Lyon, the country's second largest city, launched its own **advertising** campaign with the message: "Just Say No to Cell Phones for Children Under 12." And yet, Veyret remains silent.

In October, Finland's **Kari Jokela** and Sweden's **Maria Feychting**, joined the commission. Jokela works at STUK, while Feychting has close ties to the **Swedish Radiation Safety Authority**. Swedish radiation protection officials advocated precaution five years before STUK—since 2004 when one of Feychting's students, **Stefan Lönn**, found that long-term cell phone users had higher rates of acoustic neuroma (see also *MWN*, **October 12, 2004**). They have repeated this advice a number of times since then.

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☎: +1 (212) 517-2800, Fax: +1 (212) 734-0316; E-mail: <info@microwavenews.com>

Feychting's and Jokela's tenure at ICNIRP has been too short to hold either accountable for the commission's past inaction; time will tell whether they will push for change.

Some say that ICNIRP should be given some slack because it moves very slowly. ICNIRP's last **guidelines** on RF exposures were published in 1998. How long could it take to write a simple statement urging caution? ICNIRP should follow the lead of its sister group in Moscow: the Russian National Committee on Non-Ionizing Radiation Protection (**RNCNIRP**). The Russians issued a **warning** last spring pointing out that the "potential risk for children's health is very high." They closed with some advice that ICNIRP should take to heart: "It is our professional obligation not to damage the children's health by inactivity."

Motorola Closes RF-Health Lab

February 9... Call it the end of an era. **Motorola**, which has by any measure been the dominant force in the RF health arena for more than 15 years, is stepping back from the fray. The field will never be quite the same again.

On Friday, February 13, Motorola will close down its RF research lab in Plantation, FL. C.K. Chou, Mark Douglas, Joe Elder, Joe Morrissey and their support staff have all lost their jobs. A few days later, Ken Joyner, another key player on RF regulatory affairs based in Australia, will leave Motorola after 12 years with the company.

"I don't know who will fill the gap," Morrissey told *Microwave News*.

The layoffs in the RF group are part of a major restructuring at Motorola in response to plunging sales of its cell phones. In January, Motorola announced that it would cut an additional 4,000 jobs—3,000 from its handset unit—after axing 3,000 jobs late last year. Last week's financial headlines tell the story: "**Dark Days at Motorola**" (*Forbes* on Tuesday); "**Motorola: Becoming a 'Peripheral Player'**" (*Businessweek* on Wednesday).

Motorola's management must have decided that the company could no longer afford to lead on RF radiation safety, which it has done since 1993, when cell phones were first accused of causing brain tumors. After David Reynard made his claim in court and on the *Larry King Show*, the company got involved on all fronts: Motorola determined what health studies needed to be done and then sponsored them in the U.S. and Europe. In the process, it also specified how they should be done and by whom. Motorola's staff and allies served on editorial boards of journals, which judged what research was good enough to be published. Motorola also ran standards committees which trans-

late research results into allowable exposure limits. Mays Swicord, who left the **FDA** to become Motorola's head of biological research in 1995, even took over as the editor of the *Bioelectromagnetics Society (BEMS) Newsletter*, allowing him to decide what news and opinions would be presented to the research community. Simply put, Motorola ran the RF show. (To see how the game was played, see our 2004 report, "**Industry Rules RF.**")

Here's a snapshot from our coverage of the BEMS annual conference in Long Beach, CA, in 1999 when Motorola's influence was at its peak (see *MWN*, **J/A99**, p.5):

Motorola was everywhere. Motorola scientists, engineers, consultants and administrators came to Long Beach from three continents. To keep order, the company sent a lawyer and a PR man. In all, there were about a dozen Motorola staffers at BEMS, not counting those actually doing Motorola-funded research.

To its credit, Motorola did fund a broad-based RF research effort in the 1990s, when **CTIA**, the cell phone trade group, and its main man George Carlo, reneged on a commitment to sponsor \$25 million worth of health studies. But its initiative came at a price: Motorola micromanaged the research, which prompted charges that it was less interested in doing science than buying results that would show cell phones are safe. For instance, when Ross Adey, in a large **animal study** paid for by Motorola, found that cell phone radiation could inhibit brain tumors, Motorola forbade him to speculate about a protective effect. Motorola insisted that the radiation could not have any effects, good or bad, and would not allow one of its contractors to say otherwise (see *MWN*, **J/A96**, p.11).

In the late 1990s, as Europeans grew more and more concerned about possible health impacts, and with a major research program taking shape in Brussels, Motorola turned its attention overseas. First, it helped set up the Mobile Manufacturers Forum (**MMF**) and together they were instrumental once again in shaping which studies were funded, how they were done and by whom. In some cases, Motorola's control led to ambiguous and ultimately unusable results. A set of \$10 million RF-animal studies organized by Motorola and the MMF—known as **PERFORMA**—was a washout because Motorola-designed exposure equipment used in all the experiments put the animals under so much stress that it confounded any chance of seeing any effect from the radiation (see "**Wheel on Trial**").

Motorola played an equally commanding role in the development of health standards and of measurement protocols for cell phone exposures. At the IEEE's International Committee on Electromagnetic Energy (**ICES**), **Chou**

served as the chair of the ICES subcommittee that wrote the most recent revision of its RF exposure standard, and **Mark Douglas** ran one of the groups writing protocols to estimate the **SARs** from cell phones. Chou traveled widely to protect Motorola's and the rest of the industry's interests—for example, to Washington to lobby the **FCC** and as far as Beijing to dissuade the Chinese government from adopting tough cell phone standards. Motorola wanted uniform standards in every country. It became a principal supporter of the World Health Organization's (WHO) **EMF Project**, and its mission to "harmonize" EMF standards. (No one in Geneva seemed to care that such corporate contributions violated the WHO's own rules.) Motorola gave WHO's Michael Repacholi \$50,000 a year and when Motorola bundled corporate contributions through the MMF, WHO got three times that amount.

What happens now that Motorola is bowing out? The most predictable change is that the U.S. military, the Air Force in particular, will reassert its influence in the RF-health arena. The military has been able to stay in the shadows while Motorola took center stage, but, with Motorola gone, the Air Force will want to make sure that it can continue to freely use its radar, communications and weapon systems. It cannot afford to take the risk that a group like the **BioInitiative Working Group** which doesn't share Motorola's and the Air Force's thermalist perspective, might take control. Symbolically, in June, **Michael Murphy**, who works on **microwave weapons** at Brooks Air Force Base in Texas, will become the president of BEMS, replacing **Niels Kuster** of IT'IS in Zurich, which has long had close ties to the cell phone industry and Motorola in particular.

Less clear is who will step up and take control of the cell phone issue. CTIA would be the logical pick, but CEO Steve Largent has steered CTIA clear of the health controversy. The trade group simply ignores the issue and, if pressed, directs inquiries to the **American Cancer Society**, which also maintains that there are no health risks other than driving while on a handheld phone. That leaves the MMF, but its future may be somewhat precarious given that most of the manufacturers, not just Motorola, are in financial trouble. MMF has always had a stronger presence in Europe and Asia, and it might have trouble expanding in the U.S. during these hard economic times. As for consumer groups, not a single one has shown any interest in getting involved. *Consumer Reports*, for instance, devoted twice as much space to "**BlackBerry thumb**" than to **tumor risks** in its annual cell phone issue last month (though some may consider any story to be progress since the magazine has ignored the radiation issue for years).

Maybe Motorola's management got it right. If no one

in the U.S. is paying attention to cell phone risks, what's left of its cash might be better spent elsewhere. But that's not really the point. RF-health research is a job for public health professionals—whether it's setting priorities or implementing them—not for corporations whose financial wellbeing depends on the outcome. The same applies for setting exposure standards.

Motorola may no longer be an active player, but many questions remain to be answered. Unfortunately no one wants to address them.

February 13... **C.K. Chou** is staying at Motorola after all. A spokesperson for the company told *Microwave News* that he will serve as chief EME (electromagnetic energy) scientist for Motorola's **Enterprise Mobility Solutions** division. "CK will continue managing matters related to RF based on solid science," she said. Chou will still be based in Plantation, FL.

Cancer Cluster at UCSD; EPRI's Kheifets To Investigate

February 23... The University of California, San Diego (UCSD), campus is in an uproar over a cluster of cancer cases among those working in the university's Literature Building. Eight women who worked there developed breast cancer between 2000 and 2006, which is significantly more than would have been expected by chance, according to an **analysis** by **Cedric Garland**, a UCSD epidemiologist.

In his June 2008 report to UCSD Chancellor Marye Ann Fox, Garland devotes a lot of attention to the possible role played by EMFs, especially transients from the motors of the building's elevators. Garland recommends a strategy of "prudent avoidance," which he calls a "special case of the precautionary principle":

The issue of the etiological role of EMF in breast cancer is still not resolved with final scientific certainty, despite decades of research. However, the lack of such certainty should not be a reason to avoid taking moderate measures to minimize needless exposure of workers to power frequency EMF.

The cluster is now being investigated by **Leeka Kheifets**, who has a position at UCLA and is closely associated with the Electric Power Research Institute (**EPRI**), an arm of the electric utility industry. In fact, Kheifets has spent most of her professional career either directly or indirectly working for EPRI. UCSD appears to have hired Kheifets on the **recommendation** of **Emilie van Deventer** of the WHO **EMF Project** in Geneva. van Deventer ne-

glected to mention the EPRI connection to UCSD. Kheifets's report is expected in a couple of months.

Some, like **Dennis Childs**, a UCSD literature professor, have raised questions about Kheifets's independence from EPRI and the power industry. In response to these concerns, Kheifets "insisted on the organization's independence and emphasized that without the work of the EPRI, there would be scarce, if any, research on the connection between cancer and EMF," according to an **article** in *The Guardian*, the UCSD campus newspaper.

This must not pass without comment. EPRI's track record on EMFs is a sordid one. It has served the interests of the electric utility industry at every turn by seeking to control EMF research. In the 30 years since Nancy Wertheimer and Ed Leeper first linked power line EMFs with childhood leukemia, EPRI has not sponsored a single study that has moved the field forward. Rather it has sought to slow research or stop it all together, and, whenever possible, implicate some agent other than EMFs. One example: Rather than follow-up the Wertheimer-Leeper findings, EPRI hired a consulting firm, run by Daniel Roth, to evaluate their work. He trashed it. This could not have been a surprise. Roth had previously done a similar hatchet job for EPRI on work on fine particles in the air and the risk of asthma attacks. (Roth later worked for the tobacco industry; see David Michaels's indispensable book, *Doubt Is Their Product*.) One of the two project managers for the Roth report was Rob Kavet. Twenty-five years later, Kavet is still at EPRI and now runs its EMF program.

Kheifets joined EPRI in 1988 and worked her way up to become the manager of the EMF program. In 2001, after five years in that job, she joined Mike Repacholi at the EMF project in Geneva (see *MWN*, **M/J01**, p.3). Even while at the WHO, Kheifets received support from EPRI (see our **August 9, 2005** post). Since returning from Geneva, Kheifets has renewed her close ties to EPRI.

Unlike UCSD's Garland, Kheifets has an ambivalent view of the precautionary principle. In early 2003, she and Repacholi announced that the WHO would apply the precautionary principle to EMFs (see *MWN*, **M/A03**, p.1). But soon afterwards they changed their minds and declined to follow through—many claimed that they had succumbed to industry pressure. Instead, Repacholi and Kheifets said that they would develop a "comprehensive risk management framework in which precaution plays at every stage" (see *MWN*, **M/J03**, p.1). This turned out to be a ruse. The framework was never completed and was later quietly shelved by WHO management. Six years later, the EMF project has yet to favor precaution for EMF exposures.

No one knows whether EMFs played a role in the

UCSD cluster, but if the university wants a fair assessment, it should hire a disinterested expert.

February 24... Tara Parker Pope, who writes the "Well" column in the *New York Times*, has picked up the UCSD cancer cluster story in her online **blog**. This will likely focus national attention on the cluster and how the university deals with it.

Genotoxic Effects Found Only For CW Signal in Finnish Study

March 3 ... Getting a handle on EMF and RF effects is a frustrating business. A new **paper** in the March 9 issue of *Mutation Research* from Finland's University of Kuopio tells the story. The Kuopio **research group** found that mobile phone radiation, at 5 W/Kg, can amplify the DNA damage caused by a chemical mutagen. This is far from the first time an RF-induced genotoxic effect has been reported (see our **September 3, 2008** post).

What's surprising and unexpected is the increased DNA damage was seen only after exposure to continuous wave (CW) radiation, not to pulsed GSM radiation. Most observers would say that, for the same average SAR, the GSM signal would be more likely to cause biological effects because the intensity of each pulse is greater than the average. (The empty spaces between the pulses smooth out the peaks and bring the average intensity down.) In some cases, both the CW and the pulsed signal may have the same genotoxic effect, as Henry Lai and N.P. Singh **reported** back in 1996. But the Finns found the increased DNA damage *only* for the CW, not the GSM, signal. As they note: "[T]his result is not supported by observations from experiments with GSM-modulated RF radiation." They put the best face on what they found, concluding: "This is not an unusual situation in the literature on biological effects of RF radiation. Contradictory results are often reported, and different RF signals, cell types, and SAR levels complicate comparison between studies." True, but that can hardly be the end of the story. There's a lot more to sort out before we understand what's going on.

The Kuopio group includes a nearly exhaustive list of RF-genotox papers. But **two notable papers** are missing: those from Hugo Rüdiger's lab at the University of Vienna. This smacks of historical revisionism. Though some have claimed that a member of Rüdiger's lab engaged in scientific misconduct and that all the resulting RF-DNA work should be trashed, this is still very much a conjecture and remains far from proven.