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For Immediate Release

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Mobile Phones and Brain Tumors: Public Remains Underinformed

A Sept. 11, 2002, *Associated Press* (AP) article by Gretchen Parker entitled, "Study linking brain tumors and older cell phones could be used against Motorola," lays out arguments pro and con about the recently published brain tumor study of Swedish oncologist and epidemiologist Lennart Hardell¹. Dr. Hardell is an expert witness for the plaintiff in the Newman cell phone brain tumor case currently before Judge Catherine Blake at the U.S. District Court in Baltimore.

What is the public to believe? Does the popular media take the time to analyze the details of research reports so the public can assess the facts upon which the industry arguments are based? If not, how else will the public be able to make an informed choice, for themselves and for their children, about how often and how long to use their cell phones?

"The response of The EMR Network," said President Janet Newton, "is to point the public to in-depth information on the debate in the research community about human exposure to radiofrequency radiation (RFR). This debate has resulted in challenges to the adequacy of current regulations governing the public's exposure to RFR from mobile phones and their base stations." (See: <http://www.emrnetwork.org/position/position.htm>.)

The AP article mentions three major studies [Inskip 2001², Johansen 2001³, and Muscat 2000⁴] published since December 2000 that, according to Ms. Parker, "showed cell phones don't cause **any adverse health effects.**" These happen to be the same studies the Motorola defense team has submitted in evidence to counter the Hardell study.

AP's broad statement asserting the lack of any adverse health effects is a common example of overly simplified reporting that can lead the public astray. The studies in question covered **only** brain tumors and cancer. No three studies could ever purport to demonstrate the absence of **all adverse health effects.**

Louis Slesin, Ph.D., publisher of *Microwave News: A Report on Non-Ionizing Radiation* (See: www.microwavenews.com) points out that Hardell's study examines long-term exposure to mobile phone radiation while most of the subjects in the three other studies were short-term mobile phone users.

Given the large and ever-increasing numbers of cell phone users and the resulting potential public health implications, it is imperative that reporters and journalists accurately relay the details of research to the public.

Research studies can take years to accomplish. Protocols must be designed and carried out, data analyzed, reports written and then submitted for publication and peer review. In the meantime the public continues to buy and use untested wireless communications products that, were they drugs or medical treatments, would not be allowed on the market until proven "safe and effective." Research on pulsed or "digital" RF signals that are used in the

newest wireless consumer products indicates effects not always demonstrated in studies of the older analog technology. It is premature to assert that digital RF exposures cause no adverse effects.

To be adequately informed, wireless consumers must read past the headlines, and the popular media must do its "due diligence" and dig beyond the press release and summary for each new study as it is published.

See following pages for more detail:

MOBILE PHONES AND BRAIN TUMORS

POPULAR MEDIA vs. RESEARCH LITERATURE

A Sept. 11, 2002, article reported in popular media outlets including print, broadcast, and internet highlighted again how the public remains consistently under-informed on the question of adverse health effects from cell phone radiation.

The *Associated Press* article by Gretchen Parker entitled, "Study linking brain tumors and older cell phones could be used against Motorola," lays out the arguments pro and con about the recently published brain tumor study of Swedish oncologist and epidemiologist Lennart Hardell.¹ Dr. Hardell is an expert witness for the plaintiff in the Newman cell phone brain tumor case currently before Judge Catherine Blake in the U.S. District Court in Baltimore.

The law firm of Peter Angelos, counsel for the plaintiff Christopher Newman, wants this study included in evidence and contends that, "from a public health perspective, the court should just be aware of what's out there."

Motorola has asked Judge Blake to dismiss the Hardell study. Its spokesperson, Norman Sandler, is quoted as questioning Hardell's methods and theory. It is reported that he doubts that people who used the phones as much as ten years ago can recall at which side of their heads they held their phone.

What is the public to believe? Does the popular media take enough time to analyze the details of research reports so that the public can understand the facts upon which these opposing arguments are based?

In the AP article, mention is made of three major studies [Inskip 2001², Johansen 2001³, and Muscat 2000⁴] published since December 2000 that, "showed cell phones don't cause **any adverse health effects**." These happen to be some of the studies the Motorola team submitted in evidence to counter the Hardell study.

This broad statement asserting the lack of any adverse health effects is a common example of how the public can be led astray. A reading of those three reports will first point out that each one studied **only** brain tumors and/or cancer. No three studies could ever purport to demonstrate the absence of **all adverse health effects**.

How can the public evaluate the different outcomes in these studies? Inquisitive and energetic media are called for. Given the large and ever-increasing numbers of cell phone users and the potential public health implications down the road, it is imperative that

reporters and journalists relay the details of the research to the public. How else will the public make an informed choice, for themselves and for their children, about how often and how long to use their cell phones?

When reading the actual studies, one finds that the three earlier studies look at significantly smaller groups of cell phone users and/or users who have used their phones for significantly shorter periods of time in comparison to the Hardell study subjects. This information is found in the reports themselves and well as in the transcripts of the hearings before Judge Blake held in Baltimore in February 2002 to determine the admissibility of this scientific testimony. One expert witness characterized these differences by saying that the earlier studies are like looking for gray hair on a third grader – one might find a few. But in the Hardell study with larger numbers of study subjects and years longer of cell phone use, one can expect to find some gray hairs.

A reading of the complete Hardell study demonstrates the same trend. For the overall use of analog cell phones, there was a 30% greater risk of developing a brain tumor compared to a person who did not use a cell phone. For subjects who used analog cell phones for 10 years or more, the risk increased to almost 80 per cent. Hardell also looked at digital cell phone users and cordless phones users. Both of those groups had shorter exposures and showed a lower probability of brain tumor development. Hardell notes that in Sweden the analog cell phone system started in 1986, analog cordless phones started in 1988, but now digital cordless phones are available, and digital cell phones came along in 1991.

In the "Discussion" portion of the study Hardell notes:

Furthermore, digital cellular phones have not been in use for as long as the analogue ones, which would be of importance for carcinogenesis.

This was exemplified in our study with median time of use (tumor induction period) of 7 years for analogue phones, 3 years for digital phones, and 5 years for cordless phone.

Hardell's method of collecting the exposure data has been criticized for the amount of direct conversation with subjects to acquire the information, i.e., that questions asked by a live researcher can "lead" the subjects to an answer they would not have given on a written questionnaire. The "Materials and Methods" section notes that a written protocol was used for phone interviews so that all subjects were asked the same questions. Subjects were called when there were discrepancies in the exposure information. For example, if the subject indicated that his phone use began in a year before which his listed model of phone was on the market, a call was made to determine which part of that information which was in error.

Of the 2561 tumor subjects chosen from the cancer registry, 1617 fulfilled the inclusion criteria. The subjects had to be alive so that family members were not relied on to give the exposure information. Subjects that started their mobile phone use within one year prior to diagnosis of a tumor were considered unexposed, i.e., the tumor had to have been from another cause. Of these 1617 tumor subjects, 1429 answered the questionnaire. Of the 1617 controls chosen (people from the general population register) 1470 answered the questionnaires. Subjects were matched for age (within 5 years), geographic location, and sex. The results were based on 1303 complete pairs.

A Finnish epidemiological study of brain tumor and salivary gland cancers among mobile phone users was also published early in 2002⁵. The study was based on exposure assessment found in 1996 cellular phone company records. The point of the study was to

evaluate this source/method of compiling the exposure data. The **results** showed that cellular phone use was not associated with brain tumors or salivary gland cancers overall, but that there was a weak association between gliomas and analog cellular phones.

One might expect that these results would lead to a conclusion in this study that cell phones “don’t cause cancer.” However, the point of the study was to evaluate how reliable the exposure data would prove to be. The **conclusion** states:

*A register-based approach has limited value in risk assessment of cellular phone use owing to **lack of information on exposure**.*

Why was this conclusion reached? Again, one must look to the “Discussion” section of the study:

A register-based approach avoids recall bias, as well as selection bias related to nonresponse. However, we are not able to verify that the actual user of the cellular phone was the subscriber or someone else (such as a family member). In a study conducted in the United States, the cellular phone subscriber was the primary phone user in 69% of subscriptions and was the sole user in 48%. We also had no information on the frequency or duration of calls, or on cellular phones provided by companies to their employees. Before 1996, there were more corporate than private subscriptions in Finland, and therefore more than half of all cellular phone users could have been classified as non-users in this study.

It is important to point out that while long-term exposure to cell phones is beginning to be examined with the Hardell study, very little research exists on long-term exposure to cell phone base station radiation exposures. The cell phone user can choose the duration of his exposure to his own phone. Neighbors of base station antennas cannot “hang up” on their radiation exposures.

The vast majority of the public relies on the popular media to inform it on scientific and medical developments relating to their everyday lives. This puts a significant burden on the popular media to their homework and to refrain from making broad generalizations about health and safety risks that are

¹Hardell , et al. (2002) Cellular and cordless telephones and the risk for brain tumors. *European Journal of Cancer Prevention* 11, 377-386.

² Inskip PD et al. (2001) Cellular-telephone use and brain tumors. *New England Journal of Medicine* 344: 79-86.

³ Johansen C et al. (2001) Cellular telephones and cancer – a nationwide cohort study in Denmark. *Journal of the National Cancer Institute* 93: 203-7.

⁴ Muscat JE et al. (2000) Handheld cellular telephone use and risk of brain cancer. *Journal of the American Medical Association* 284: 3001-7.

⁵ Auvinen A et al. (May, 2002) Brain Tumors and Salivary Gland Cancers Among Cellular Telephone Users. *Epidemiology* Vol. 13 No. 3: 356-9.