Are Brain Cancer Rates Rising Among Young Adults? Striking Increase Cited at Congressional Hearing

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In many ways, last Thursday's Congressional hearing on cell phone cancer risks, called by Rep. Dennis Kucinich (D-OH), brought few surprises. David Carpenter and Ronald Herberman made the case for precaution, especially for children, while National Cancer Institute's Robert Hoover countered that he is not persuaded that there's anything to worry about.

One piece of compelling news did emerge, however —though it never made it into the mainstream press: Brain cancer appears to be on the rise among young adults. Herberman testified that, on looking at government statistics, he was "struck" by the fact that the incidence of brain cancer has been increasing over the last ten years, particularly among 20-29 year-olds. If the latency for brain tumors is more than ten years and cell phone are in fact responsible for the increase, cancer rates might not peak for at least another five years, according to Herberman.

Herberman's analysis stands in sharp contrast to Hoover's assessment of the same data. Government statistics show no increase from 1987 to 2005, Hoover said at the hearing. If Herberman is right, he would puncture a central, albeit indirect, argument in favor of the safety of cell phone. The NCI, among others, argues that brain cancer rates are stable, and therefore that cell phones are not doing any harm. "Thus far, brain cancer incidence trends in the U.S. are unrelated to patterns of cell phone use," Hoover told Kucinich. In response to Herberman, Hoover offered to provide the subcommittee with the most recent government cancer statistics.

Herberman, the director of the University of Pittsburgh Cancer Institute, and his colleague Devra Davis have prepared a paper on their interpretation of the cancer data. "We're submitting it for publication," Davis told *Microwave News.* "We're looking at

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increasing trends in brain tumors among those under the age of 39, between 1995 and 2005," she said.

An uptick in brain cancer among 20-29 year-olds would also add weight to the findings of Sweden's Lennart Hardell. At a conference held in London earlier this month, Hardell reported that those who started using cell phones before the age of 20 were five times more likely to develop a glioma, a type of brain tumor. The U.K. press had a field day. The *Independent* warned of a looming brain cancer "epidemic" while the *Telegraph* reported that the country was facing a "health time bomb."

In their prepared statements, both Carpenter and Herberman cited Hardell's new finding. "This observation is consistent with a large body of scientific studies that demonstrate that children are more vulnerable than adults to carcinogens," Carpenter said. When Kucinich asked what should be done, Carpenter replied that "the evidence is certainly strong enough for warnings that children should not use cell phones." He warned that, "The failure to take [strong preventive action] will lead to an epidemic of brain cancer." Carpenter is the director of the Institute for Health and Environment in Albany, NY.

Herberman criticized the NCI and Hoover for failing to cite the Hardell studies. He called this omission in the *NCI Cancer Bulletin,* released just before the hearing, a "major lapse" (see our September 23 post).

"Certainly Dr. Hardell's studies have made important contributions," Hoover said. But he then went on to assert that Hardell had left out many cases of brain tumors in his early studies. "To Dr. Hardell's credit, he attempted to do something very fast, [but] he used a method…that effectively ended up eliminating everybody who died quickly." As a result, Hoover said, Hardell's first study included "less than 30% of the total number of cases."

When asked about this, Hardell told *Microwave News* that he does not know where the 30% figure comes from. "It is not correct," he said. "We have published all the numbers in different papers."

Hardell first published his finding that the young have higher brain tumor risks from cell phones back in 2004. Writing in the *Archives of Environmental Health,* he reported that those who started using cell phones before they were 18 had more than five times the expected rate of brain tumors. At the time, he warned that this finding should be "interpreted with caution" because it is based on a small number of cases and is not statistically significant.

In London, Hardell presented an updated estimate of the risk. This time, he looked at those who started using phones before reaching the age of 20: They had a 5.2-fold increased risk of developing a glioma. This new result is based on 15 cases and is statistically significant. Hardell said that a paper with these new results is "in the pipeline."

NCI on Interphone

In his prepared remarks, Hoover offered his views of the Interphone results published to date. The individual studies have found "no evidence of an overall increase in the risk of any type of brain tumor associated with the first ten years of cell phone use," he said. "A somewhat increased risk has been found in some studies for tumors diagnosed on the same side of the head that the cell phone was used for those with more than ten years of cell phone use." But, Hoover continued, "these are based on small numbers, generally less than 5% of the cases under study, and are not consistently seen across all studies." He called these "isolated findings" that need to be replicated with different study designs "to sort out the roles of chance and bias."

The combined Interphone analysis, he concluded, with a larger number of long-term users will hopefully provide "statistically stable estimates" of the risk that will "bring some clarity to the current state of the science."

With respect to possible risks to children, Hoover acknowledged that, "We do know that cell phone use is increasing rapidly among children and adolescents. They are a potentially sensitive group because of their small head size and [this] could result in a higher RF exposure, and the young brain may be more sensitive." He said there are at present "no published studies in the peer-reviewed literature" but that a European study should be available "soon."

Hoover was referring to the CEFALO project, a study of brain tumors in children and adolescents being carried out in Denmark, Norway, Sweden and Switzerland. He predicted that some results would be available by the middle of next year. That may be a bit optimistic. The end of 2009 is more realistic, Switzerland's Martin Röösli, a member of the CEFALO team, told *Microwave News.* Few observers believe these findings, like those of Interphone, will settle the question of whether there are long-term health risks.

Are There RF Non-Thermal Effects?

In the later part of the hearing, Kucinich asked whether cell phone radiation could cause non-thermal effects. Carpenter responded that "there are literally hundreds of experimental studies in animals and cells that show effects without heating." But, he said, the strongest evidence comes from epidemiology, specifically the increase in brain cancer after ten years of use.

Herberman agreed that there are "quite a number of studies" that show effects and damage. "[What] struck me the most," Herberman said, "are several reports from very experienced credible scientists of damage to the DNA, which we know is the central mechanism for developing tumors and malignant cancer."

Kucinich followed up by asking, "How would that happen?… How could RF radiation conceivably change or damage DNA?" Herberman, who acknowledged that this was indeed "surprising," responded that his "favorite hypothesis" was that the RF signal generates reactive oxygen species, which can damage DNA.

When Hoover was asked to comment, he raised concerns as to the reliability of the papers on RF-induced DNA breaks. "I know that very recently there have been reports of the ability to do genetic damage," he said. "Some of them, I guess, are currently under scrutiny, as to whether they might be withdrawn or not. So, I think the area is actually still evolving."

Julius Knapp of the FCC, who also testified at the hearing, said that he does not have an opinion on the adequacy of radiation standards because no one at the agency has the competence to evaluate the biology. "Our focus is on implementation," he told the subcommittee.

Kucinich closed the hearing by saying that the cell phone industry "will be given another opportunity to testify." CTIA, the industry trade group, had declined his invitation to appear. Instead it issued a statement, citing NCI's view that there is no scientific basis for any concern over brain cancer.

Kucinich said that he plans to continue his investigation into cell phone health risks. "We are not going to let this matter rest," he said.

A video of the entire hearing, called by the Domestic Policy Oversight Subcommittee, can be viewed on its Web site. The prepared statements of all the witnesses, except NCI's Hoover, are also posted on the Web. Kucinich pressed Hoover to submit a written copy of his testimony.

Denis Kucinich, NCI, Robert Hoover, David Carpenter, Ronald Herberman, Devra Davis, Lennart Hardell, Julius Knapp, CEFALO,

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