

WAKE-UP CALL
The Link Between
Cell Phones and Cancer

VOGUE

JUL

**EAT, PRAY,
DANCE**
A Night
Out with

**OPRAH
and
LADY
GAGA**

French
Bombshell

**Marion
Cotillard**

Ignites
Hollywood

FALL FASHION PREVIEW

From Lean Lines
to Dangerous Curves

**PLUS RED LIPS
WITH EVERYTHING**

**BEAUTY
BREAKTHROUGH**
Next Generation
Sunscreens

UP IN THE AIR
The Return of High Hair

\$3.99US \$4.99FOR 07>



088445

0 357079 1

Wake-up CALL

WITH RECENT RESEARCH RAISING QUESTIONS ABOUT THE DANGERS OF CELL-PHONE RADIATION, ESPECIALLY TO CHILDREN, ROBERT SULLIVAN WONDERS WHY MORE PEOPLE AREN'T LISTENING. PHOTOGRAPHED BY NICK KNIGHT.

Faced with the daunting task of replacing my cell phone the other day, I marveled at the options: Am I the only person left on the planet who just wants a phone to call ahead for dinner reservations? Won over by the salesperson, I bought the BlackBerry Tour. When I got home and paged through the directions, my eyes began to glaze over until I came to the part about exposure to radio-frequency signals. According to the instructions, I should hold the phone *away* from my ear and avoid letting it even touch my head—about an inch away, in fact. (It also says, almost comically, “reduce the amount of time spent on calls.”)

This seemed counterintuitive to me—don't you put a phone to your ear? The idea also surprised David O. Carpenter, M.D., director of the Institute for Health and Environment at the State University of New York at Albany. Carpenter first learned of the recommendation while at a hearing on cell-phone safety in the Maine state legislature this past March. A man who was testifying happened to mention that manuals suggest keeping some space between you and your phone. “I didn't know that, and I don't think anybody knows that,” Carpenter said.

That is about to change as politicians, researchers, and public-health officials are once again grappling with questions

about the effects of radio-frequency radiation, the kind emitted by wireless devices. For years the cell phone–safety debate has seemed stalemated: The Food and Drug Administration and the Federal Communications Commission have said that cell phones are safe or, more specifically, that they have not been proven to be harmful. “The weight of scientific evidence has not linked cell phones with any health problems,” reads the FDA's statement. The cell-phone industry has concurred. But mounting evidence of the possible adverse effects of cell-phone radiation in Europe and in Israel has spurred some state legislatures in the United States to take precautionary action. In California, a proposed bill would require cell-phone manufacturers to prominently display the amount of radiation a phone emits, along with the price and other features. (Currently, you have to wade through the manuals or surf the FCC's Web pages to find this information.) In Maine this past spring, a legislator went even further, introducing a bill to require cell-phone manufacturers to put a safety warning in the packaging, similar to the one on cigarette packs, stating that the radiation emitted by the phone has been linked to cancer.

In each case, the cell-phone industry has marshaled forces to resist the legislation, claiming that the warnings are unnecessary. In Maine, the bill was changed under pressure from the cell-phone

CHILD'S PLAY

Many children see cell phones as toys, but concerns about safety persist. Sittings Editor: Phyllis Posnick.



industry before it was eventually defeated—transformed into a measure that would ask government health departments to investigate the issue and post precautions on their Web sites. TechAmerica, a technology-industry association, issued a statement regarding the Maine bill: “The labels called for in the original bill would have been misleading by asserting an unsubstantiated health risk and by implying that the federal government’s safety limits are insufficient.”

When I talked to John Walls, vice president of public affairs for CTIA—The Wireless Association, a cell-phone-industry group, he said the industry was following the per-

In the United States, the FDA and FCC hold steady on their cell-phone recommendations, and news reports tend to downplay any cancer-cell-phone links.

So what is going on? Why the vast difference in policies on either side of the Atlantic? One reason is that the European Union works under the auspices of what is known as the precautionary principle—the onus is on business to show that a new product doesn’t harm people before the product is introduced. In the United States, the laws are designed to give a company the benefit of the doubt: Generally speaking, science must prove that a new technology is detrimental before

the government takes action to curb its use. Meanwhile, the debate Stateside is about ten years behind the conversation in Europe, where cell phones were adopted into everyday life long before they were here.

But with cell-phone use in the U.S. growing rapidly, policy-makers are starting to take notice. In the last three years there has been a 26 percent increase in the total number of cell-phone owners, up to 270 million people.

When the FCC created their

standards 28 years ago, the cell phone was more a part-time communications novelty than the full-time lifestyle accessory it has become. Now, according to a 2008 survey by the Centers for Disease Control and Prevention, 20 percent of all American homes have only cell phones. Similarly, in the mid-nineties, it would have seemed unlikely that children would use the phones. Today, according to the National Institutes of Health, the percentage of children under the age of eighteen with cell phones has increased from 39 percent in 2004 to 66 percent. Additionally, nearly 20 percent of all children live in households with only cell phones.

The idea of children using cell phones exclusively has perhaps had the greatest impetus toward changing safety standards. Not only do children’s skulls offer less protection from radiation, but children will be exposed to greater amounts of radiation in their lifetimes. What kind of damage does this do? That’s debatable, but this kind of radiation has been implicated in tissue damage and the breakdown of DNA strands—proof, at the very least, that there ought to be more people studying it. “There is no study going on in the U.S., and that’s just outrageous given the magnitude of the problem,” says SUNY Albany’s Carpenter.

There are several studies under way in Europe, and one in particular is likely to be completed any day now: the World Health Organization’s Interphone Study. Scientists asked respondents from thirteen countries, half of whom had brain tumors, to recall cell-phone usage and habits—for instance, which ear they pressed the phone to the most, how many hours in the past they might have used a phone. This method of data collection is notoriously unreliable—do you remember how long you used your phone last month?—but scientists hope to find clues in patterns.

Meanwhile, smaller studies in the last few years have highlighted concerns. A 2008 report by the International

“IT’S A RADIATION-EMITTING DEVICE THAT WE BUY FOR OUR CHILDREN. I THINK WE ARE ASKING THE WRONG QUESTION, WHETHER OR NOT THEY HAVE BEEN PROVEN TO BE UNSAFE. THE QUESTION SHOULD BE, HAVE THEY BEEN PROVEN SAFE?”

missible radiation standards set by such agencies as the World Health Organization and the FCC. “We’ve always been guided by science,” he says.

This is nothing less than true. The contention stems from the fact that the science was done long before cell phones were even popular, and the research behind these standards is outdated, according to many scientists pushing to reassess those measures. “It’s science that predates the introduction of hundreds of millions of cell phones,” says Om Gandhi, Ph.D., professor of electrical and computer engineering at the University of Utah, Salt Lake City, whose studies helped set the current FCC standards, which were first established in 1982 and most recently updated in 1999. This is where the local legislators have picked up the slack. “It’s a radiation-emitting device that we hold to our heads and buy for our children and that they hold next to their heads and put under their pillows,” says Andrea M. Boland, the state representative who introduced the bill in Maine. “So I think we are asking the wrong question, whether or not they have been proven to be unsafe. The question should be, Have they been proven safe?”

This is the question other countries have been asking for decades. In the past few years, health agencies in several European nations have stressed the need to reduce cell-phone use among children. Scientists working with France Telecom, the French communications company, showed that in the standard use of cell phones, a child’s thinner skull would absorb twice as much radiation as an adult’s. The European parliament has passed a resolution urging member states to develop lower radiation-emission limits for cell phones. And with more studies linking cell-phone radiation to brain cancer (as well as migraines and behavioral problems in children born to mothers with significant prenatal cell-phone exposure), cities in Europe have proposed strict standards.

Agency for Research on Cancer showed that people who had used cell phones regularly for more than ten years ran an increased risk of developing a type of brain tumor called glioma, which is usually malignant, on the side of the head on which they mostly used the phone. (The authors acknowledge that the relationship could be causal, or it could be what is termed artifactual—in other words, a statistical blip.) Other European studies have shown a higher risk for glioma and a benign brain tumor called acoustic neuroma with long-term cell-phone use. In Israel, researchers found that prolonged cell-phone use was also associated with a 50 to 60 percent greater risk of salivary-gland tumors.

The cell-phone industry says that if cell phones cause cancer, there ought to be an increase in the number of cancer patients in society; so far, studies indicate a rise in the risk of these cancers, but they don't indicate an overall jump in the rate in the general population. But to follow cancer rates in the population takes long-term study. What many public-health officials fear is that the statistical uptick in cancer cases may be years down the

road. At a recent congressional hearing before a Senate subcommittee, Devra Davis, Ph.D., founding director of the Center for Environmental Oncology at the University of Pittsburgh Cancer Institute, noted the first studies of brain cancer from the fallout of the bombing of Hiroshima and Nagasaki were completed in the nineties. Likewise, the effects of smoking did not play out until decades after the country got hooked on cigarettes. "After World War II was when smoking *really* started, but lung-cancer rates did not increase in the population until 20 or 30 years later," says Olga Naidenko, Ph.D., an immunologist and senior scientist with the Environmental Working Group (EWG), a public-health advocacy organization.

"Naturally, not every single cell-phone user comes up with brain cancer, just as we know not every smoker comes up with lung cancer," Naidenko says. But public-health scientists are in a Catch-22 situation: If they wait to urge safety precautions, as some scientists did with smoking, the numbers of brain tumors in the population could increase. If they do succeed in urging reform, the tumor rates might never increase, and they could appear like Chicken Littles.

The source of the radiation, the phone itself, has come under scrutiny. Last fall, EWG released a report on cell-phone safety, authored by Naidenko, and set up a Web site ranking cell phones by the amount of radiation they release (ewg.org/cellphone-radiation). To rank the phones, EWG measures a phone's level of SAR—or specific absorption rate of radiation, essentially the amount of radiation a phone gives off. The higher the SAR level, the higher the level of radiation emitted. The industry argues that a SAR below 1.6, the FCC safety level, is OK. (The FCC requires cell phones to have SAR levels no greater than 1.6 watts per kilogram.) Today, we are hit with radiation from various sources, such as the cordless handsets connected to land lines and the radiation coming from Wi-Fi transmitters and cell-phone towers. But to put it in perspective, your cordless handset can emit between five and ten milliwatts of radiation. The radiation emitted by a cell phone is between 100 and 600 milliwatts.

Advocates of safe cell phones are often painted as radicals or zealots, when many of them are merely asking for studies and, in particular, for the FCC and FDA to revisit their standards. Regarding the latter, there seems to be something of a campaign brewing. In her recent testimony before a Senate health committee, Davis, whose book *Disconnect: The Truth About Cell Phone Radiation, What the Industry Has Done to Hide It, and How to Protect Your Family* will be published in September, suggested a \$1 surcharge on cell phones to fund a national study. "The absence of an epidemic of brain cancer should not be reassuring us," she says. Like most of the scientists who are worried about the implications of people walking around with handheld radiation-emitting devices, she is most immediately concerned for children, whose biology is most susceptible and who, if safety standards do not change, risk the most. "We are experimenting on our children," she says.

The very good news about cell phones is that they can be (and sometimes are) designed to give off less radiation. Making all cell phones safer is not like asking for a mission to Mars. It's doable. In the meantime, you don't have to live in a lead-lined cabin, and you don't have to make any expert calculations on the state of electromagnetic waves in your personal space. In fact, a person can avoid a lot of the controversies and possible biological complications by merely buying a hands-free headset. That, and keep your calls to your mother-in-law brief. □

TALK to ME

The cell-phone PR tends to brand the scientists advising cell-phone-safety precautions as out-of-touch extremists. That is not necessarily the case. "I'm calling you now on a land line, but I still have my cellular," says Olga Naidenko, Ph.D. In fact, the concerned scientists are merely urging caution. To wit, their strategies:

TEXT Instead of calling, text. It uses less radiation.

WEAR A WIRE If you do talk, wear a hands-free headset. (A Bluetooth is not the same as a wire.) At the very least, use a speakerphone setting.

HEED CELL-PHONE RADIATION-EMISSION LEVELS The Environmental Working Group lists them on their Web site.

DON'T MAKE YOUR PHONE WORK One study says that rural phone users may be exposed to more radiation because of poor service—if the phone has to work hard, it will be emitting more. Avoid the use of cell-phone protective covers that might hinder a phone's reception. Likewise, the phone works less hard when you are listening than when you are talking, a radiation-induced friendship enhancement.

KEEP THE PHONE OUT OF YOUR POCKET

Some reports say a cell worn on the belt may affect a man's sperm count—another reason, perhaps, to push the male purse.—R.S.