

Cell phones pose health risks, says Devra Davis at UCSF seminar

26 October 2010, By Jeffrey Norris

Heavy cell-phone use over many years may threaten one's health, according to well-known environmental activist, cancer epidemiologist, and author Devra Davis, MPH, PhD, who spoke recently at a seminar on the UCSF Parnassus campus.

Pressing a [cell phone](#) against the ear, day-after-day, year-after-year, and exposing oneself to radiofrequency electromagnetic radiation at close range is not good for what's inside the head, Davis said, pointing to what she described as well-conducted, independent epidemiological studies of heavy cell phone use, and to animal experiments.

Cell phone use can increase risk for malignant brain cancer and other tumors, including acoustic neuromas and cancers of the salivary and parotid glands, according to Davis. She noted other studies that suggest cell phone use may be linked to memory loss, insomnia and inflammation, and to infertility in men. Cell phones alter brain waves in an electroencephalogram (EEG), a test that measures and records the electrical activity of the brain, Davis said.

A great percentage of the exposure to electromagnetic radiation could be eliminated by keeping the cell phone away from the body. Exposure falls exponentially with distance. Davis, who still uses her cell phone, advised using a headset and not carrying the cell phone in clothing pockets.

Davis, who earlier directed the Center for Environmental Oncology at the University of Pittsburgh Cancer Institute, where she was a professor of epidemiology in the Graduate School of Public Health, left the university in 2007 to found the Environmental Health Trust in Teton County, Wyoming.

Davis' Cell Phone Views Are Controversial

Davis' visit to UCSF on Oct. 8 coincided with the publication of her new book on cell phone risks, called "Disconnect: The Truth About Cell Phone Radiation, What the Industry has Done to Hide It, and How to Protect Your Family." Davis was a National Book Award finalist for an earlier book, "When Smoke Ran Like Water: Tales of Environmental Deception and the Battle Against Pollution."

As that earlier book title suggests, Davis is no stranger to challenging what she believes are major corporations' manipulations of health-risk research and their interpretations of risk studies pertaining to their own products.

However, Davis' views on cell phone dangers are controversial. She acknowledged that most research has not found evidence for dangers due to cell phone use. But Davis argues that most of the research has been industry funded and biased, and that most of the studies have not tracked the kind of heavy, long-term cell phone use that is so common today.

The Federal Communications Commission (FCC) established exposure standards based on earlier research by the Institute of Electrical and Electronics Engineers, in which thermal effects were estimated using a fluid-filled model of the head of a large man.

However, the most significant biological effects due to cell phones result from non-thermal effects, Davis said. In addition, most people are smaller, with smaller heads than were used in the studies used by the FCC - especially children - and the biological effects on smaller heads are greater, according to research cited by Davis.

On its website the FCC states that, "Those evaluating the potential risks of using wireless devices agree that more and longer-term studies should explore whether there is a better basis for

radio-frequency safety standards than is currently used. The FCC closely monitors all of these study results. However, at this time, there is no basis on which to establish a different safety threshold than our current requirements."

DNA Damage Due to Radio Waves

Davis noted during her talk that many scientists have dismissed the idea that exposure to radio-frequency electromagnetic radiation may pose health threats. Unlike X-rays and other forms of "gamma radiation," radio waves are non-ionizing - they do not directly break chemical bonds within molecules such as DNA.

But DNA is damaged indirectly by cell phone transmissions, according to Davis. Within cells, she said, "There are alterations of fundamental processes by pulsed signals from cell phones." For instance, exposure can trigger production of harmful production of oxygenating free-radical molecules. Davis presented research showing that radiofrequency electromagnetic radiation does indeed damage DNA.

Experiments also find evidence for disruptions to the cell cycle, through which cells divide and grow, and a decrease in the ability of cells to repair DNA, Davis said.

Davis noted the role of epidemiologic studies in demonstrating the health hazards of tobacco and asbestos. She said it is a mistake to insist on a demonstration of a biological mechanism of harm for proof. Epidemiologic evidence plus a biologically plausible mechanism should be sufficient evidence to act upon, Davis said, and such evidence already exists.

A cell phone that is turned on continually emits these pulses even when not in use. Research suggests that pulsing the electromagnetic waves might be more harmful to biological tissue than continuous exposure, Davis said.

Cancers may be triggered decades before they are diagnosed. Excess brain cancers among survivors of atomic bombs dropped on Japan did not become apparent until more than 40 years later, Davis said.

Children, whose cells and tissues are still developing quickly, may be especially vulnerable - also evidenced by the high incidence and early onset of breast cancers among atomic bomb survivors.

Cell Phone Restrictions Aim to Protect Children

Several countries have begun to restrict use of cell phones by pre-teens. Among them, France also prohibits advertising cell phones to children and requires that they be sold with earphones.

"Our children are the experiment," Davis says. But with so many children using cell phones, it may be difficult to find a control group that doesn't use them.

Davis strongly encouraged epidemiologists in the audience to brainstorm research proposals for unbiased studies to further investigate heavy cell phone use and subsequent health impacts, and was optimistic that federal funding would be made available to fund such studies.

The special seminar talk was hosted by the UCSF Center for Tobacco Control Research and Education and the UCSF Philip R. Lee Institute for Health Policy Studies.

Cell Phone Symposium Next Year

Stanton Glantz, PhD, the American Legacy Foundation Distinguished Professor of Tobacco Control at UCSF, introduced Davis. Glantz has waged a similar battle to call attention to the risks of second-hand tobacco smoke.

According to Glantz, "At this point, it is clear that there are important risks and that the design, usage and marketing of these phones needs to be revised in light of this emerging evidence.

"I already minimize my cell phone use and use a wired earpiece," he added.

Glantz is organizing a longer seminar or workshop on the topic for next year.

Davis' visit to San Francisco on Oct. 8 also

coincided with a major meeting across town at the Moscone Center, hosted by CTIA, the international association for the wireless telecommunications industry. The meeting may be the last one CTIA schedules in the city.

The organization is suing to prevent enforcement of a law signed months ago by San Francisco Mayor Gavin Newsom. That law requires that retailers display information on how much radiation exposure each phone causes. There is no meaningful distinction among phones that have been approved for sale, the trade group claims. The same information is generally available online.

More information:

-- Environmental Health Trust

www.environmentalhealthtrust.org/

-- Wireless Devices and Health Concerns

www.fcc.gov/cgb/consumerfacts/mobilephone.html

-- Get a Safer Phone

www.ewg.org/cellphoneradiation/Get-a-Safer-Phone

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