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National report calls for more research on health effects of wireless technologies

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A new National Research Council report chaired by University of Colorado at Boulder Distinguished Professor Frank Barnes calls for a stronger research effort on the potential health effects of exposure to radio frequency energy tied to the global explosion in wireless technology like cell phones, laptops and hand-held Web-surfing gadgets.

Requested by the U.S. Food and Drug Administration from the National Research Council last year, the report was released Jan 16. The authors did not evaluate potential human health effects of radio frequency, or RF, exposure from wireless devices, but rather made recommendations on how to meet research needs regarding the technology, said Barnes, a distinguished professor in the electrical and computer engineering department.

"This is a very, very complex issue," said Barnes. "Obviously we are not seeing immediate short-term effects of such exposure, like people dropping dead on their cell phones. But in the long term -- 10, 20 and 30 years out -- we have a lot less information about potential effects from these types of wireless devices."

The NRC committee chaired by Barnes hosted a three-day conference on the topic last August in Washington, D.C., reviewing scores of studies and hosting testimony by more than a dozen scientists from nine countries. Barnes briefed the White House Office of Science and Technology Policy in Washington, D.C., on the 66-page report earlier this week. The NRC is the main operating agency of the National

Academy of Sciences and the National Academy of Engineering.

Barnes said the committee recommended that future studies pay special attention to the effects of RF energy on children, adolescents, pregnant women and fetuses from exposure to hand-held devices as well as base-station antennas that transmit such signals. Although it is not known whether children are more susceptible, they could conceivably be at greater risk because of their developing tissue and organ systems, the report said.

Barnes said a large-scale epidemiological research effort involving 13 countries in Europe known as the Interphone Study is nearing completion and is providing researchers with a large amount of new data. "There clearly have been large changes in the use of personal wireless technology," said Barnes, who was elected to the National Academy of Engineering in 2004.

The report authors recommended new studies on the changing designs of antennas used for hand-held wireless communication devices. While studies targeting RF energy radiation on the human head from cell phone antennas held against the ear have been conducted, some newer cell phones and Web-surfing devices have antennas in proximity to other body regions like the waist, requiring more study, Barnes said.

A number of studies also have shown a steep increase in mobile phone use by children, ensuring that younger generations will experience much longer periods of RF exposure, Barnes said. "The fact that some cancers have a 10-to-20-year latency period make these broad, long-term studies potentially important," he said.

"The health effects of RF on the human body is a very controversial topic," he said. "There are a whole lot of studies that do not show any health effects from RF, and a few studies that do show some effects.

While some studies show "perturbed growth effects" in cells as a result of these frequencies, other studies have shown therapies using electromagnetic frequencies can facilitate bone healing, he said.

"We don't live in a risk-free world," said Barnes. "People take risks every day by driving, skiing and riding bicycles. In many ways, the risk people are willing to take is more of a question for philosophy than for science."

Source: University of Colorado at Boulder