

# Cellphone Safety: Where do you keep your phone?

*Update: The Berkeley city council approved the "right to know" proposal by a vote of 9-0, requiring health warnings with the purchase of a cellphone. It could take effect in July, but may face legal challenges.*

On Tuesday, the city council of Berkeley, California, will vote on a cellphone "right to know" law that would be the first safety ordinance of its kind in the country. It would require cellphone retailers to include a city-prepared notice along with the purchase of a cellphone, informing consumers of the minimum separation distance a cellphone should be held from the body.

The Federal Communication Commission recommends keeping your phone 5 to 25 millimeters away, depending on the model, to limit radio frequency (RF) exposure to safe levels.

"If you carry or use your phone in a pants or shirt pocket or tucked into a bra when the phone is ON and connected to a wireless network, you may exceed the federal guidelines for exposure to RF [radio frequency] radiation," is part of the proposed language. Retailers would be prohibited from selling phones that do not bear the warning: "This potential risk is greater for children. Refer to the instructions in your phone or user manual for information about how to use your phone safely."

Berkeley might become the first city to adopt such an ordinance, but it's not the first place to try. Health groups and consumers have been campaigning for cellular safety regulations for years now.

A cellphone warning label bill was introduced in Maine in 2010 by former state representative Andrea Boland, who says the public deserves to know about the potential risks associated with cellphone radiation. "Obscure warnings in tiny print or embedded deep in phones can only protect manufacturers from users," Boland points out, "not users from potential harm like cancers, Alzheimer's, learning disabilities, reproductive issues, etc."

Her bill was not enacted, but a 2015 version is currently awaiting a floor vote. It would require cellphone manufacturers to print safety notifications on the outside of the packaging or add a "Safety Notice" label directing consumers to read the safety information in the owner's manual.

Hawaii, New Mexico, California, Oregon and Pennsylvania have also considered warnings to address cellphone radiation concerns.

The city of San Francisco came closer on this front, approving regulations in 2010 that mandated cellphone retailers display the Specific Absorption Rate (SAR) -- or the amount of radio frequency (RF) energy absorbed by the body -- for each phone sold. The Cellular Telephone Industries Association immediately sued the city, claiming the law would confuse consumers by implying that lower radiation levels are safer, and the ordinance was thrown out.

# Cellphone Safety: Where do you keep your phone?

Now the Berkeley proposal seeks to address concerns that even as cellphones become ubiquitous in our lives, many people remain unaware of basic safety recommendations.



A pocket may not be the safest place to keep your phone.

istockphoto

An April 30th survey funded by the California Brain Tumor Association (CABTA) found that 70 percent of Berkeley adults did not know about the FCC's minimum separation distance. And 82 percent said they would like information about how far the phone should be kept from the user's body.

Ellen Marks, executive director of CABTA, endorses cellphone "right to know" laws, pointing out that while the majority of cellphone manufacturers include such safety information, it can be very difficult to find. For example, she notes that BlackBerry manuals tell users, "Keep the device at least 0.98 inches (25mm) from your body when the BlackBerry device is turned on and connected to a wireless network." But it takes 5 steps to find the warning -- you must click on settings, general, about, legal and RF exposure -- and most users don't even know it's there. "The public deserves the right to know that there is safe distance information required by the FCC hidden deep in the phone or in the manual," Marks said.

The radiation guidelines, established by the FCC in 1996, assumed users would carry their cellphones at least a small distance away from the body, in a holster or belt clip, which was common practice at the time. Health activists warn cellphone users today tend to keep their phones in pockets, which means they could be exposed to much more radiation -- possibly 2 to 7 times more.

To further reduce RF exposure, the FCC suggests using a speakerphone, earpiece or headset, or texting rather than talking.

## A "global health experiment"?

Berkeley's vote comes the day after the release of a letter signed by 190 scientists from 39 countries calling on the United Nations, the World Health Organization, and national governments to develop stricter controls on cellphones and other products that emit RF or electromagnetic fields (EMF). The letter states, "The various agencies setting safety

# Cellphone Safety: Where do you keep your phone?

standards have failed to impose sufficient guidelines to protect the general public, particularly children who are more vulnerable to the effects of EMF."

Other respected medical groups have also suggested action is needed. In 2013, the American Academy of Pediatrics urged the FCC to adopt cellphone radiation standards that are more protective for children, and to require more meaningful disclosure for consumers.

But what does the evidence show about long-term exposure to cellphone radiation and the risk of cancer or other health problems? While some scientists have explored possible links between cellphones and autism, infertility, brain tumors and other cancers, the consensus among major health organizations in the U.S. is that no harmful health effects have been proven.

Cellphones emit RF energy -- or non-ionizing radiation -- that is absorbed by tissues nearest to where the phone is held. Although exposure to ionizing radiation, the kind used in x-rays, has been proven to increase the risk of cancer, the National Cancer Institute (NCI) states "there is currently no evidence that non-ionizing radiation [from cellphones] increases cancer risk." It said the only known biological effect of RF energy is heating, which has not been proven to damage DNA, generally believed to be necessary for cancer development.

A February 2015 study, however, looked at the effects of mobile phone and Wi-Fi radiation on existing breast cancer cells and found the closer in distance the RF exposure was to the skin, the greater the damage to the underlying cells. Specifically, it found radiation increased reactive oxygen species (ROS), which impairs the ability of cells to repair themselves, which has been proven to contribute to cancer development.

In 2011, the World Health Organization's International Agency for Research on Cancer (IARC) classified radio frequency like that emitted by cellphones as "possibly carcinogenic to humans." But the American Cancer Society maintains "the evidence remains uncertain," and the issue needs further study; in the meantime, it recommends that anyone concerned about it simply try to limit their exposure.

Many experts believe larger studies over a longer period of time are needed as the number of cellphone users continues to skyrocket and wireless technology evolves. A full understanding of the effects of long-term exposure remains to be seen since cellphone use only became prevalent within the last 20 years.

Many health activists are troubled that the pace of research is not keeping up with the emergence of technology. "I think we're undergoing a major global health experiment unprecedented, perhaps, in the history of the planet," Dr. Joel Moskowitz, director of the Center for Family and Community Health at the University of California Berkeley, told CBS News. Similar to exposing the effects of smoking, he says, it could take up to 20

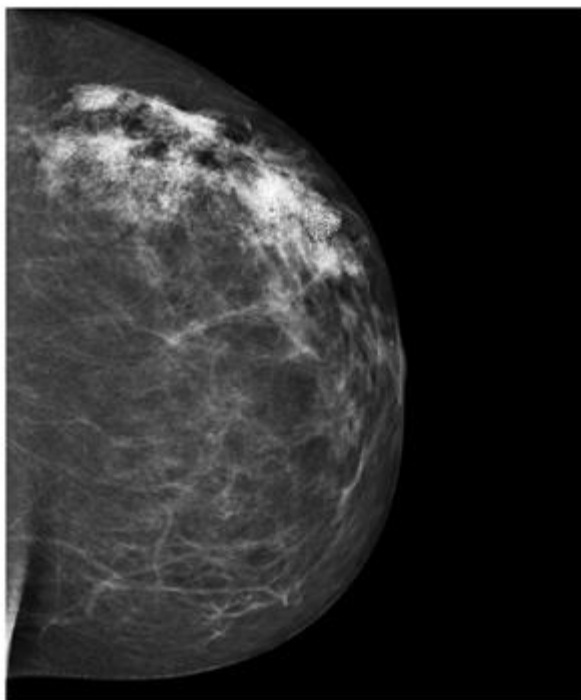
# Cellphone Safety: Where do you keep your phone?

years to convince consumers about what he believes are the adverse health effects of wireless radiation.

## Could a warning make a difference?

Dr. John West, director of surgery at the Breastlink medical practice in Orange County, California, has seen a number of cases that have convinced him there's a connection between cellphone radiation and breast cancer.

One of those patients is Shea Hartman of Lake Elsinore, California, who was diagnosed with invasive breast cancer in 2012 when she was just 21 years old.



Shea Hartman's left mammogram shows clustered calcifications corresponding to multiple sites of disease in craniocaudal and mediolateral oblique projections. (November 2012)

Dr. John West

"She had this bizarre mammogram that showed this distribution of cancer that corresponded exactly to the size and shape of the length and width of her cellphone," West explained.

To be precise, the calcifications of the malignant tumor on her left breast formed a rectangular shape measuring 3.5 by 9.5 centimeters, remarkably similar in shape and size to her Samsung Alias cellphone.

# Cellphone Safety: Where do you keep your phone?

"From 8th grade on, I would put my phone in my left bra," Hartman told CBS News. "I mostly did it during school and while I was at work because I didn't want to miss phone calls."

Tiffany Frantz of Strasburg, Pennsylvania, was also diagnosed with invasive breast cancer at the age of 21.

"Tiffany stored her cell phone in her bra (against her bare skin) for at least 5 years, every day, all day (12 hours/day) and the 4 masses that were found lined up exactly where she stored her cell phone," her mother, Traci Frantz, wrote in an email to CBS News. "My husband, Brad, and I... are convinced that her cell phone resulted in her breast cancer."

Breast cancer in women that age is rare. Fewer than five percent of breast cancer cases are diagnosed in women under 40, and the American Cancer Society estimates only 1.5 out of every 100,000 women are diagnosed under the age of 25.

In 2013, West and five colleagues published a case study of four women, including Shea and Tiffany, who had been diagnosed with multifocal invasive breast cancer under the age of 40 after routinely storing their cellphones in their bras. None of the patients had a family history of breast cancer, and they all tested negative for BRCA1 and BRCA2 gene mutations, which are linked to about 10 percent of breast cancer cases.

These incidents brought forth "the possibility of a relationship between prolonged direct skin contact with cellular phones and the development of breast cancer," the study noted, though it stopped short of establishing proof.

Other experts caution against jumping to conclusions. "Because breast cancer is an uncommon and tragic occurrence among young women, these cases have received significant attention on television and on the Internet," wrote Dr. Ted Gansler of the American Cancer Society. He warns against reading too much into this small number of very unusual cases: "We don't hear about the millions of women and men who carry phones close to various organs and still remain healthy," he said.

Dr. David Gorski, a surgical oncologist specializing in breast cancer surgery in Detroit, MI, says we naturally crave explanations when bad things happen, "particularly if it is something as unusual as such a young woman developing breast cancer, and as a result we all tend to look for causes, whether those causes are supportable by science or not."

West's research team has compiled data on at least 32 women in the U.S. who believe their breast cancers came from tucking their phones in their bras.

How common is that habit? In 2013, West conducted the only known nationwide survey to determine how many young women store their phones in their bras. Out of 251

# Cellphone Safety: Where do you keep your phone?

college-age women surveyed, 9 percent said they keep their phones in their bras occasionally, while about 40 percent said they "rarely" do. Half said they never do so.

The numbers may seem slim, but West believes "they represent the tip of the iceberg." He believes young women are biologically more vulnerable because the breast is a developing organ, and "I can no longer discount what I have observed."

Tiffany's mother, Traci Frantz, believes a straightforward and visible warning label on her daughter's phone could have made a difference. "Had there been a statement on the outside of the box stating what is already stated within the owner's manual about keeping cellphones away from direct contact with the skin, we could have taken precautions to make sure her cellphone was kept in a safe place *off* her body," she said.