The safety of cell phone towers is the subject of extensive scientific debate. There is a growing body of scientific evidence that the electromagnetic radiation they emit, even at low levels, is dangerous to human health.

The cell phone industry is expanding quickly, with over 100,000 cell phone towers now up across the U.S., which is expected to increase ten-fold over the next five years. The industry has set what they say are “safe levels” of radiation exposure, but there are a growing number of doctors, physicists, and health officials who strongly disagree, and foresee a public health crisis.

Many towers have been built recently in Siskiyou Colorado, with dozens more planned, as telecommunications companies rush to corner markets in this fast-growing industry. These towers emit radio frequencies (RF), a form of electromagnetic radiation (EMR), for a distance of up to 2-1/2 miles. They are essentially the same frequency radiation as microwaves in a microwave oven.

Studies have shown that even at low levels of this radiation, there is evidence of damage to cell tissue and DNA, and it has been linked to brain tumors, cancer, suppressed immune function, depression, miscarriage, Alzheimer’s disease, and numerous other serious illnesses. [1]

Children are at the greatest risk, due to their thinner skulls, and rapid rate of growth. Also at greater risk are the elderly, the frail, and pregnant women. Doctors from the United Kingdom have issued warnings urging children under 16 not to use cell phones, to reduce their exposure to radio frequency (RF) radiation. [2]

Over 100 physicians and scientists at Harvard and Boston University Schools of Public Health have called cellular towers a radiation hazard. And, 33 delegate physicians from 7 countries have declared cell phone towers a “public health emergency”.

The U.S. Federal Communications Commission (FCC) is in charge of setting the standards of exposure for the public, and claims that, based on scientific studies, the current levels are safe. But it is not a public health agency, and has been criticized as being “an arm of the industry”. Many who work for the FCC are either past, present or future employees of the very industries they are supposed to regulate. With an explosively emergent $40 billion dollar a year industry at stake, critics have stated “you can bet that their studies are going to show whatever they want them to show”.

“Our federal government also once told us that asbestos, cigarettes, thalidomide, and the blood supply were "safe", but which were later found to be harmful.

“You can bet that their studies are going to show whatever they want them to show.”
– Cathy Bergman-Veniza, at Vermont Law School Environmental Law Center Conference, 1996

Contrary to what the communications industry tells us, there is vast scientific, epidemiological and medical evidence that confirms that exposure to the RF and microwave radiation emitted from cell towers, even at low levels, can have profound adverse effects on biological systems. [5, 6, 7, 8].
There is vast scientific and medical evidence that exposure to cell tower radiation, even at low levels, can have profound adverse effects on biological systems.

Scientists and advocacy groups say that the current FCC “safe” standards are based on 1985 research, and fail to consider more recent research that found brain cancer, memory impairment, DNA breakdown, and neurological problems with RF at much lower levels. The earlier studies considered only the “thermal”, or heating effects of the radiation – in other words, the level at which the radiation would heat tissue, or “cook” a person, in the same exact manner that a microwave oven works. The FCC levels may ensure our tissues are not “cooked”, but they fail to address long-term chronic exposure at low levels, or what is called “non-thermal” effects.

Doctors say that RF radiation is wreaking havoc with normal biological cell functions. “RF alters tissue physiology” says Dr. George Carlo, an epidemiologist who found genetic damage in a $28 million research program, paid for by the industry. He now fights to have safety levels lowered. [9]

In 1998 the Vienna Resolution, signed by 16 of the world’s leading bioelectromagnetic researchers, provided a consensus statement that there is scientific agreement that biological effects from low intensity RF exposure are established. It says existing scientific knowledge is inadequate to set reliable exposure standards. No safe exposure level can be established at this time.

The world's leading electromagnetic researchers say existing scientific knowledge is inadequate to set reliable exposure standards. – The Vienna Resolution, 1998

The Salzburg Resolution, adopted in 2000 at the International Conference on Cell Tower Siting, would prohibit any cell site from emanating more than .1 mW/cm2 – 10,000 times more strict than the current U.S. standard. This limit takes into account the growing evidence for non-thermal RF bioeffects. [10]

Cell phone towers expose the public to involuntary, chronic, cumulative Radio Frequency Radiation. Low levels of RFR have been shown to be associated with changes in cell proliferation and DNA damage. Some scientific studies show adverse health effects reported in the .01 to 100 mW/cm2 range at levels hundreds, indeed, thousands, of times lower than the U.S. standards. These harmful low levels of radiation can reach as far as a mile away from the cell tower location. Reported health problems include headache, sleep disorders, memory impairment, nosebleeds, an increase in seizures, blood brain barrier leakage problems, increased heart rates, lower sperm counts, and impaired nervous systems. [11]

Long term and cumulative exposure to cell tower radiation has no precedent in history. There are no conclusive studies on the safety of such exposures, and the growing body of scientific evidence reports such bioeffects and adverse health effects are possible, if not probable.

Dr. Neil Cherry, Ph.D. biophysicist from New Zealand, reports that “There is no safe level of EMR radiation.” He said the standards are based on thermal effects, but important non-thermal effects also take place, such as cell death and DNA breakdown. Dr. Cherry wrote a 120-page review of 188 scientific studies. “The electromagnetic radiation causes cells to change in a way that makes them cancer forming.” It can increase the risk of cancer two to five times, he said. “To claim there is no adverse effect from phone towers flies in the face of a large body of evidence.”

“To claim there is no adverse effect from phone towers flies in the face of a large body of evidence.” – Dr. Neil Cherry, biophysicist

Public health officials caution that we err on the side of conservatism, given the massive public health risk that is possible.
Other federal health agencies disagree that safe levels of exposure have been identified, much less built into the FCC standard. The Environmental Protection Agency (EPA) does not agree with the FCC standards, and analysts have recommended that EMR be classified as a “probable human carcinogen”. [12]

Deputy Director of the Department of Health and Human Services, Elizabeth Jacobsen, has stated that the safety of RF “has not been established nor has the necessary research been conducted to test it”, and cites risk of brain cancer, tumors and DNA breakdown. The California Public Utility Commission has urged the cell phone industry to not locate towers near schools or hospitals. And the World Health Organization reports “many epidemiological studies have addressed possible links between exposure to RF fields and excess risk of cancer. These studies do not provide enough information to allow a proper evaluation of human cancer risk from RF exposure because the results of these studies are inconsistent.”

“The safety of RF has not been established, nor has the necessary research been conducted to test it.” – Elizabeth Jacobsen, Deputy Director, US Department of Health

“Our bodies are exquisitely sensitive to subtle electromagnetic harmonics, and we depend upon tiny electrical impulses to conduct complex life processes,” says Dr. Robert Becker, author of The Body Electric, and Cross Currents, The Perils of Electropollution. [13, 14]

He says “at the present the greatest polluting element in the earth's environment is the proliferation of (these) electromagnetic fields.” Radiation once considered safe, he says, is now correlated with increases in birth defects, depression, Alzheimer's disease, learning disabilities, Chronic Fatigue Syndrome, and cancer.

The incidence of brain cancer is up 25% since 1973, and this year 185,000 Americans will be diagnosed with brain cancer. Brain tumors are the second leading cause of cancer death for children and young adults.

Yet, the United States has a de facto policy of “post sales surveillance” with respect to RF radiation. Only after years of exposure, will there be studies to characterize the health consequences.

Some adverse health effects show up immediately, but it can often take 3 to 10 years for the longer term effects of RF illness to appear, such as cancer. Many researchers, public health officials and citizens believe that consumers shouldn’t be forced to act as guinea pigs in a bioeffects experiment for the next 20 years. In short, “we are the experiment”, for health effects.

Dr. Gerard Hyland, physicist, says existing safety guidelines for cell phone towers are completely inadequate, since they focus only on the thermal effects of exposure. [15] Hyland, twice nominated for the Nobel Prize in Medicine, says existing safety guidelines “afford no protection” against the non-thermal influences. “Quite justifiably, the public remains skeptical of attempts by governments and industry to reassure them that all is well, particularly given the unethical way in which they often operate symbiotically so as to promote their own vested interests.”

“Existing safety guidelines for cell phone towers are completely inadequate.”
– Dr. Gerard Hyland, Physicist – two-time nominee, Nobel Prize in Medicine

The industry lobbied Congress with $39 million in 1996 to ensure passage of a law which essentially gives them the right to place these towers in our neighborhoods, and makes it next to impossible to oppose them based on health reasons. It is no coincidence that EPA funding was also cut in 1996 for electromagnetic radiation health studies. Citizens and communities across the country are angered, and are protesting this imposition of involuntary, 24-hour-a-day microwave exposure, without proven safety levels. As one citizen stated, “There's no place left to escape.”
The industry lobbied Congress with $39 million in 1996 to pass a law that took away citizen’s rights to oppose cell towers based on health reasons.

Also, once a cell tower is erected, it has proved very difficult to verify the radiation is within legal limits. There are no safety measures in place to ensure that the towers are not emitting higher radiation levels than legally allowed. One frustrated resident finally spent $7,000 purchasing his own equipment to test a cell phone tower near his home, and found it emitting radiation at levels 250% over the legal limit. [16]

Property values have also been known to drop once a cell tower is erected, due to the perceived risk of negative health effects. Cellular phone frequencies have also seriously disrupted local emergency and law enforcement radio communications.

Massachusetts lawyer Mark Berthiaume, opposing placement of a cell phone tower, said “Municipalities .... are being bullied every day by providers of wireless telephone service who use their financial clout and the federal (law) to intimidate the communities into allowing them to place large towers in inappropriate locations.” [17]

Some Questions and Answers

But don't we need and depend on cell phones?

Of course. No one is saying not to have cell phones and towers, but to make them safer. If Austria can have levels 10,000 times more protective, then so can we. It is just more expensive to the companies. Also, we don't have to let these cell towers go anywhere and everywhere the industry wants them. We can require that they erect the minimum number required to provide adequate coverage, and be put in the safest places possible.

Why don't we just oppose the construction of cell towers in our county?

In a strategic move, the cell phone industry has tried to make it illegal for citizens to oppose the towers based on health concerns. In the Telecommunications Act of 1996, state and local rights were seriously limited with regard to opposing towers based on health concerns. The constitutionality of this Act has been challenged in the Supreme Court, and a long legal battle is sure to follow. But it will take years, while the public continues to be exposed to chronic, cumulative radiation with each new cell tower.

So what CAN we do?

The Telecommunications Act prevents citizens from opposing the towers based on concerns about RF emissions, but we can oppose them on numerous other valid grounds. There are still rights we and our local elected officials maintain, that allow us local control of the number, size and placement of cell towers, while still providing for adequate cell phone coverage. Numerous communities have called for moratoriums on tower construction, allowing them needed time to study the issue, and enact strict ordinances that require the industry to respect community desires, such as building the minimum towers necessary, in appropriate locations. During these moratoriums, communities are preparing non-industry biased studies of cell phone tower need, and creating cell tower Master Plans, to help protect the rights and health of citizens, while complying with the law. [18, 19, 20]

Siting of cellular towers is an important function of our elected officials. Protection of citizens' health and property rights should be foremost in the responsibilities of local government. We urge our elected officials to protect the health and welfare of the citizens who live here, rather than big-money interests with profit as their bottom line.

Page 5 – Health Effects from Cell Phone Tower Radiation

©2002, Karen J. Rogers, B.S.

Endnotes

1 Microwave and Radio Frequency Radiation Exposure, San Francisco Medicine, Vol. 74, No 3, March 2001
2 Mobiles Risk to children, Daily Mail (U.K.), May 11, 2000
4 Tower concerns should be health, not aesthetics, Burlington Free Press, January 12, 2001
8 A Cellular Phone Tower on Ossining High School?, includes extensive reference to scientific papers and government documents citing adverse health effects from cell tower radiation, www.cyburban.com/~lplachta/safeweb2.htm
9 Cell Phones: Invisible Hazards in the Wireless Age: An Insider's Alarming Discoveries About Cancer and Genetic Damage, Dr. George Carlo and Martin Schram, Carroll & Graf, ©2001
10 International Conference on Cell Tower Siting, by Monica Kauppi, No Place to Hide, September 2000, Resolution presented June 2000 and signed by 19 of 23 speakers, including Dr. Carl Blackman of the U.S. Environmental Protection Agency.
11 Ibid, endnote 5.
16 FCC takes look at 'antenna farm', Denver Post, October 30, 1998
17 Town May Order Company to Remove Cellular Tower, Massachusetts Lawyers Weekly, March 20, 2000

http://www.mountshastaecology.org/17other01cellphones.html