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## Cell phones Invisible hazards of the wireless age

by Amanda Brown PhD



Few people would be surprised to hear that cell phones are unhealthy. But how many of us actually know the degree of damage they cause, the extent of the cover-up by the industry, or that there is a viable solution? Dr. George Carlo, a mobile phone industry whistleblower, recently presented a talk in Vancouver about how electropollution from wireless technology can cause brain damage, cancer and an array of mental illnesses.

I checked his facts against recent, peer-reviewed scientific papers and the results were startling. Dr. Carlo explained why the industry's user manuals don't warn of these health hazards: currently, there are pending class action lawsuits against them, which threaten to expose the entire industry, similar to the cases brought against "Big Tobacco", and the asbestos and silicone breast implant industries. But what really shone brightly in Dr. Carlo's message were his realistic solutions. One option is to have fibre-optic cables running underground to our curbs to shorten the distance and power necessary for the wireless signals. According to Dr. Carlo, this option requires an ongoing search for the diamond politician or activist who will take the lead.

It's important to get the facts straight. Dr. Carlo, a scientist hired by the cell phone industry in the '90s, now believes cell phones are the greatest health hazard of our time. In his view, there is no question that mobile phones cause terrible health consequences. It seemed prudent to independently check the recent, peer-reviewed scientific literature to see if



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his mid-1990s results are supported today. A quick search revealed five excellent studies from 2006 that provide strong evidence of serious problems from electromagnetic signals from cell phones.

In contrast, several review studies that pooled results from 10 to 20 other studies suggested the evidence isn't conclusive either way. However, these reviews may have been diluted by the inclusion of some studies with ties to telecommunication industry funders. One author cited in these studies is affiliated with an Australian institute that has an FAQ web page full of suspicious PR (see [www.acrbr.org.au/FAQ.htm](http://www.acrbr.org.au/FAQ.htm)). The website states this group of scientists has agreed, by committee, on the science they want to do: essentially, that which shows cell phones are harmless, and they will focus their research accordingly. Very revealing PR. Dr. Carlo also found that among more than 300 studies completed over the past six years, those funded by the industry are more than six times more likely to find "nothing wrong" than studies that are funded independently.

Dr. Carlo explained in detail his theory of how cell phones cause brain damage. It begins with the wave. The signals use carrier waves of around 1,900 megahertz (MHz), which are so high in frequency that they pass right through us, and our houses, unnoticed. But harmful information-carrying waves are packed into the carrier waves. These information waves, which carry signals that can be decoded by our computers and mobile phones, are low-frequency waves in the range of one hertz (Hz). That's slow. So slow that our cells can feel them as an aggravating, physical jolt at their surfaces. Within 30 seconds or so of bombardment, our cells temporarily shut down their surface transport and intercellular communication functions, to resist further damage from threatening invaders.

Normally, small threats to cells cause them to send out chemical signals to neighbouring cells that tell them to protect themselves from invaders, and they signal for help from our immune system's T-cells. But bombardment from mobile phone waves causes whole areas of cells and tissues to shut down their surfaces, stopping the active transport of good and bad stuff in and out of the cell, without time to signal a warning to other cells. Further, the shut down of gap junction communication pathways compromises tissue and organ functions, including the immune system.

Free radicals build up inside the cells so they eventually die and spill toxins and fragmented DNA into the space between cells. There, micronuclei form as a result of membranes becoming organized around broken bits of DNA. These micronuclei wreak havoc, disrupting cell function and allowing cancers to form. That is how, as Dr. Carlo explains, both benign and malignant tumours are caused by wireless signals. He suggests a similar process occurs at the blood-brain barrier that protects our delicate neurons and their tiny sophisticated chemical signals from contaminants in our blood. Once cells in the barrier are shut down by mobile phone waves, all kinds of big, toxic molecules enter our neural spaces where they can cause many problems, among them "autism spectrum disorders," which include some types of anxiety attacks, hyperactivity, ADD, problems with focussing, mild and severe autism, hyper-irritability and others.

Based on levels of adult cell phone use in the '90s, Dr. Carlo predicts

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40,000 to 50,000 new cases of brain and eye cancer caused by mobile phones each year worldwide. By 2010, he estimates the number to be near a half million cases. Given that Dr. Carlo's prediction derives from conditions in the '90s – average use of 500 to 1,000 minutes per month, with little or no wireless background signal – the numbers are bound to be higher. Increasingly, we are blasted by wireless signals all day long, both at home and at work. In certain closed spaces, such as cars or buses, the signals are intensely amplified as they bounce around, trapped. Data, so far, suggest there is no safe level, only a probable safe duration of exposure. Our cells may not be damaged until after about 30 seconds of bombardment from wireless phone signals.

Dr. Carlo also suggests our cells can be imprinted so they remember the disruption and pass it down to future cells. This may be why some people seem to have heightened sensitivity, experienced as sudden unexplained anxiety when walking past a wireless hotspot. While peer-reviewed studies have not yet been done to directly address this claim, most of us have experienced the effects of an information-carrying signal that disrupts sensitive objects around us, like the car stereo. Although additional research is required, our instincts are probably right; these signals have an effect and it is unnerving.

So why don't our cell phones and wireless cards come with a "Use at your own risk" label and a warning that there is evidence they may be harmful? The crux of the problem is historical. Mobile phones were exempted from pre-market safety testing in the '80s because they were presented as merely "low-powered" devices, taking the onus off the industry to prove their safety. This was a problem for advocates and opponents alike. Industry found it necessary to prove they were safe to defend against claims such as the cell phone related brain cancer death of Deborah Reynard in 1993. Reynard's cancer was unusual, growing from the outside to the inside of her head, at the precise location of her mobile phone antenna. Following that case, the industry began to fund its own researchers to study the health effects of cell phones, but it struck a deal with the regulating bodies that stipulated they would only research the damaging effects of cell phones as long as they could remain unregulated until all the research was done. That's when the industry hired Dr. Carlo. Even before Dr. Carlo's group's research was published, the industry began to file for patents on devices to make them safe, but these depended on proof that cell phones posed a danger. It was a classic Catch-22, leading to a cascade of hypocritical acts by the industry as it sought safer technologies, while at the same time printing users' manuals stating that cell phones were not harmful.

The industry was obviously aware that Dr. Carlo was a threat; since his findings, he has been threatened, physically attacked, defamed and his house mysteriously burned down. By 1998, his group's research showed that the nearfield electromagnetic plume of seven or eight inches around the antenna of the cell phone caused leakage in the blood brain barrier, as well as rare neural-epithelial cancers and double to triple the risk of benign and malignant brain tumours.

Then there's the story of Milt Bowling, Canada's most outspoken mobile

phone critic and head of the Electromagnetic Radiation Task Force (ERTFC). In the '90s, Bowling was catapulted into an all-consuming battle with the industry when it attempted to erect a cell tower on the roof of his son's school. It became outrageous when one company implanted a mobile phone transmitter inside a church cross and donated it to the church across from the school.

Bowling's story appeared on the Fifth Estate in 1997 and made waves around the world. His chief concern now is that our safety regulations are ridiculously outdated, only requiring limits for radiation high enough to heat body tissue by one degree celsius within six minutes. He says this is like saying "if it doesn't cook you, there's no problem." Clearly, science shows problems prior to the tissue heating.

Given the threat of public opposition roused by activists such as Dr. Carlo, and Bowling here in Vancouver, why don't our governments establish more restrictions? Vested interests are a huge problem. Governments know they can only charge a tiny fee for licensing alternatives, such as fibre-optics, whereas they can charge a fortune for wireless bandwidths, totalling several billion dollars in the US. So governments have taken the path-most-paying. As an example, to pay for initial, expensive, wireless infrastructure (towers), industry made agreements with regulators (e.g. the Federal Communications Commission, or FCC in the US) that the big companies could pay 10 percent down and leave the cell phone users to pay off the remainder. This may be the reason for the aggressive marketing of mobile phone plans to teens; there's a big debt to pay off. The industry's need to cover-up the hazards of wireless technology has been fuelled not only by fear of lost profits, but also by fear of bankruptcy. Insurance companies gradually withdrew all coverage for claims relating to health problems from cell phones following the first studies showing they were dangerous. Today, there are seven pending class action suits against the mobile phone industry; one successful lawsuit alone could bankrupt a company by setting a precedent for other pending lawsuits. It took just one such lawsuit each to bring down the silicone breast implant and asbestos industries.

A more frightening side of all of this is that the cell/wireless industries represent such an enormous portion of the stock market. If they caved in suddenly, the ripples could be catastrophic. We all need to be sensible. Expose the truth, plan for changes and move swiftly and intelligently towards a better, less wireless world.

*This article was inspired by a recent talk by Dr. George Carlo, a scientist and cell phone industry whistleblower. Visit ([www.safewireless.org](http://www.safewireless.org)) for more information about Dr. Carlo's work. His visit to Vancouver was sponsored by the Health ActionNetwork Society ([www.hans.org](http://www.hans.org)).*

**Dr. Carlo offers solutions at three levels:**

- 1) primary solutions that prevent damage;
- 2) secondary solutions that reduce the effects of the damage;
- 3) tertiary solutions that repair the damage.

Primary solutions include using a hands-free headset to keep the phone away from your body. However, this doesn't reduce your background

exposure to wireless hotspots, and even worse, wire-antenna and Bluetooth headsets may act as antennas to attract ambient or background wireless signals to your head. Dr. Carlo suggests using "air-based" head sets, although they won't prevent second-hand electropollution.

The best solution is to reduce background radiation by moving to an older, but better, technology: fibre-optic cables that transport the signal to the curbsides of our schools, cafes, offices and homes, after which we can either plug-in to the signals or use short distance or air-based wireless. It's expensive in that it involves digging trenches to keep the cables straight and protected, but the technology is ready to go and the insulation around them is very effective; the radiation is almost nil.

Dr. Carlo suggests combining primary solutions with secondary and tertiary solutions. Secondary solutions include working with the subtle energies of our cells, which have their own natural electromagnetic fields. Tertiary solutions include enhancing people's overall health to foster the repair of cell membranes. Boosting our health by improving the immune system's ability to stimulate cellular repair may help with both of these solutions. However, in our cities with widespread, blanket wireless systems, as in Toronto where background radiation is already 500,000 times higher than it was five years ago, it's hard to imagine that merely boosting our immune systems could completely counter the harmful effects.

Lastly, Dr. Carlo talked about abstinence. He confessed that while abstinence works, it is not really practical. Try getting teens off their cell phones! One study showed that 91 percent of 12 year olds use cell phones, and in Buffalo teens were clocking in 2,600 to 7,000 minutes per month on their phones.

With cheap packages going for as little as \$150 for 5,000 minutes, it's unlikely teens will abstain any time soon. Among males, there's even the belief that carrying their phone in their front pocket, where it is known to reduce sperm count, is the greatest thing ever, good birth control!

Abstinence doesn't work for cell phones any more than it works for teens and sex. In fact, Dr. Carlo himself uses a cell phone, albeit, with an air-based headset.

Marketing campaigns for mobile phones and wireless technology capitalize on our need to fill the empty spaces in our urban landscape. They are irresistible because they facilitate community. Despite the damage they cause, we like the feeling of the grassroots empowerment and interconnectedness they provide.

If this connection is real, let's harness it now to spread the truth about these hazards and work together on solutions.



