

# **Generation X'd Out:**

## **An end to the human race as we've known it?**

*Babies born to GENERATION X-RAY may be on the fast track to humanity's genetic DEAD END.*

The term "Generation X-ray" refers to youth addicted to communicating and recreating with wireless devices—cell phones, PDAs, WiFi computers and music/gaming equipment. These wireless devices emit high-frequency microwave radiation, recently demonstrated by European researchers to efficiently inflict the same horrific damage on human cells as X-radiation.

Surveys reveal that the average American child under 18 now spends several hours a day irradiating himself with his cell phone "toy." Meantime, Swedish scientists report that children and teens who use cell phones are up to five times more likely than non-users to suffer glioma brain cancer. Gliomas are among the most difficult to treat and deadly of human cancers. Children who use cordless household phones have over four times the risk of developing brain tumors.

The far-reaching health hazards to children and teens from wireless technology are well-documented in part one of this Idaho Observer series:

[Generation X-ray: Child Victims of Technological Abuse.](#)

While the European Parliament and governments around the world are calling for stricter limits on wireless exposure for kids, Gen X-ray continues to ride the down escalator towards disintegrating health and premature death.

Most tragically, because our young people have received no official warning from U.S health agencies, they unknowingly micro-cook their sperm, ova and fetuses with a radiation known to be just as mutagenic and teratogenic as gamma wave radiation from nuclear fallout.

The science is clear. Babies born to the hard-core wireless generation will suffer a high probability of genetic corruption from their very seed.



**Scientists warn that a pregnant woman using a cell phone, with or without a headset or bluetooth device, could cause her to place the transmitting phone near her abdomen, exposing her baby to dangerous levels of microwave radiation. Both the pelvic structure and amniotic fluids promote the deep penetration of microwaves, which can be easily absorbed by the fetus.**

By Amy Worthington

We see them everywhere now. Armies of American women of childbearing age roam dazed through shopping centers with transmitting cell phones pressed firmly to their heads. Often with forlorn pre-schoolers traipsing behind, these gals wander the aisles getting "stoned" on microwaves. The opiod-like "high" they glean from skull-piercing phone radiation is documented in animal studies to habituate like nicotine.<sup>1</sup> No one has told them that an extended cell phone "fix" enshrouds their bodies in high-frequency electromagnetic energy with potential to unleash devastating effects on both their living and future offspring.

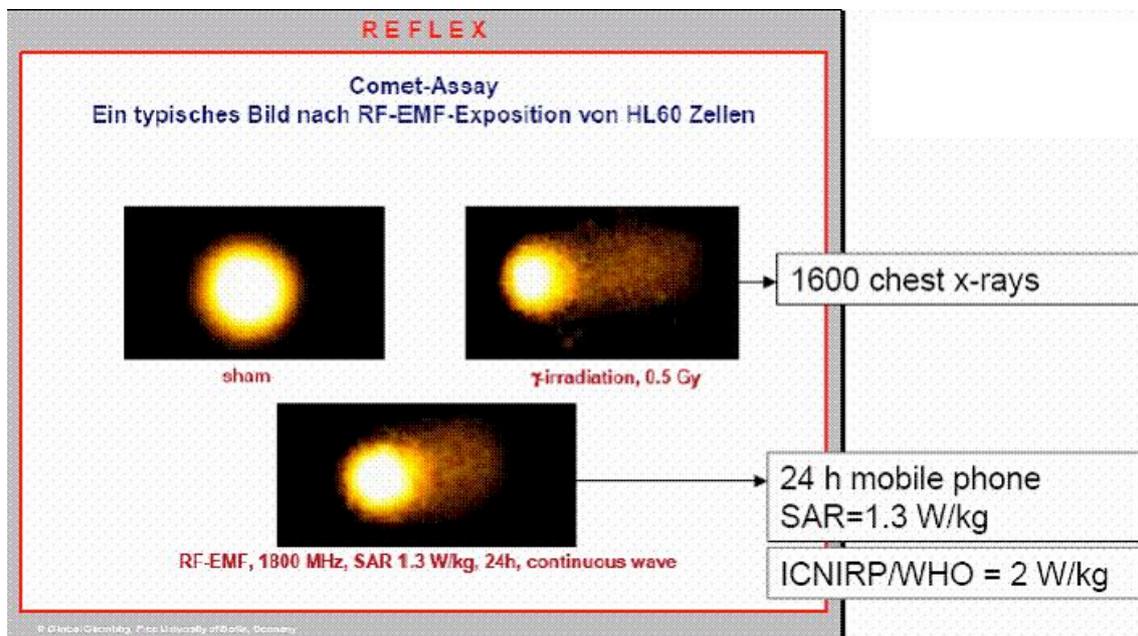
Across America, young, uninsured, low-paid retail and service employees are required to wear powerful "push-to-talk" radios equipped with large, cackling antennas. Capable of propagating high frequency energy for miles at the speed of light, these devices are worn just millimeters away from delicate reproductive cells. Mega and gigahertz microwaves are documented to damage both sperm and ova. Yet, employers are not required by law to warn these exploited youngsters of possible reproductive damage.

Myriad office workers are encumbered with wireless blue tooth regalia, including headsets and remotes worn in pockets or on belt clips. Wireless "Voice over Internet Protocol (VoIP)" computer systems and "bluetooth" charging bases are part of the mix. Office blue tooth systems allow connectivity and freedom of movement, but for hours each day, workers swim in an invisible miasma of microwave frequencies. No law requires that workers be provided with up-to-date information on the possibility that this continuous exposure puts them at risk for miscarriages or deformed offspring.

Tower and rooftop antennas now heavily bombard college campuses, schools and playgrounds with modulating communications microwaves. Many classrooms and libraries are degraded with mind-numbing WiFi frequencies documented to short-circuit the nervous system, disrupt learning ability and impair sleep patterns. Wireless systems emit not only microwaves, but also a smorgasbord of extremely low frequencies (ELFs), shown in numerous studies to raise the risk of childhood leukemia and tumors later in life.<sup>2</sup> Educators teach kids the platitudes of the day, but never discuss how years of captivity in radiation-toxic classrooms may make them sterile, or encumber their future with genetically damaged progeny.

## DNA is the crux of the matter

For the sake of human survival, mankind must quickly master this critical fact: modern wireless technology is capable of causing the genetic destruction of humans as a species. Microwave radiation used for wireless communications and surveillance is extremely injurious to human DNA. It is therefore also destructive to both the human genome and the epigenetic chemical switches which control expression of the genes. Below is visual proof, as determined by the "REFLEX" studies, published in 2004 by the European Commission.



**Slide one (top left) shows a normal healthy cell under magnification.** This cell is a bright energetic little orb with its DNA and other genetic materials safely inside the cell membrane. It represents the cells of healthy, non-irradiated children of generations past.

**Slide two (top right) shows a living cell exposed to 1600 chest X-rays.** This cell is shrunken and has lost its energetic brightness. Trailing behind it are its genetic guts, spilling through the cell membrane as little particles that look like a comet trail against the dark background. These DNA fragments are called micronuclei, typical mutations from excessive X-rays, or from gamma waves of nuclear detonation.

**Slide three (bottom) shows a cell exposed to 24 hours of cell phone radiation.** This cell's comet tail of micronuclei splat is identical to that of ionizing X-ray damage. The microwave frequency used by REFLEX scientists to micronucleate this cell was 1.8 gigahertz (1800 megahertz), comparable to 1.9 gigahertz frequency blasting from both personal wireless communications devices and the base stations which service them.

Besides the REFLEX work, there are an additional 17 published scientific papers documenting abnormal changes in DNA exposed to cell phone radiation and other frequencies in the microwave bands.<sup>3</sup> Microwave radiation—defined as electromagnetic waves ranging from 300 million hertz to 300 billion hertz—brutalizes human cells by vibrating tissues at incredible speeds. The fragile molecules and chemical bonds of DNA cannot withstand being whipped back and forth at millions or billions of times per second. Microwaving the DNA could be described as a cellular version of "shaken baby syndrome."

When communications microwaves splinter cellular DNA into a random trail of micronucleated carnage, chromosomes and the genes they carry are reduced to chaos. Chromosomes are the macromolecules containing the genetic information that controls human cellular and reproductive activity. In each double strand helix of human DNA there are 23 pairs of chromosomes, 22 pairs of autosomes and three billion pairs of nucleotide material. Miniscule damage to any of these intricate mechanisms can trigger significant genetic effects.

Three recent studies document the development of chromosomal aberrations following cell phone irradiation of living cells.<sup>4</sup> This puts cell phone radiation on par with atomic bomb radiation, which is documented to cause chromosomal abnormalities in nuclear blast survivors. Radiation damage can range from complete DNA strand breaks to tiny point mutations, which are induced by changes in the chemical structure of the nucleotides.

Any virus, chemical or radiation that causes DNA/chromosome damage is a mutagen, defined as an agent which causes abnormal changes in the inheritable characteristics of animals or plants. A NATO military document states: "After irradiation, chromosomes appear to be 'sticky' with formation of temporary or permanent interchromosomal bridges, preventing normal chromosome separation during mitosis and transcription of genetic information."<sup>5</sup>

Abnormal chromosome division results in abnormal nuclei in daughter cells. Therefore, the systematic microwave destruction of Generation X-ray's DNA, including radical damage to chromosomes, is guaranteed to yield a bounteous harvest of sterility, spontaneous abortion (miscarriage), altered offspring sex ratios, embryo growth retardation, increased perinatal morbidity, fetal malformation, premature birth, low birth weight and cognitive dysfunction in infants.

### **Wireless radiation is repeating history**

REFLEX studies confirm that a transmitting cell phone broadcasting microwaves into living tissue is essentially an X-ray machine in the context of DNA damage. Scientists say it requires only one DNA mutation to generate a cancer condition. Most tragically, a cancer condition can manifest in babies and very young children born with damaged DNA.

In the 1950s, Dr. Alice Stewart, a British pediatrician and epidemiologist, began studies to determine the cause of an alarming increase in childhood leukemia in Britain. At that time, fetuses were routinely X-rayed and Stewart suspected that the leukemia surge was connected to excessive prenatal radiation. Dr. Stewart's research became a threat to the medical *status quo* and she was subjected to brutal criticism. She lost staff and funding, yet she continued gathering epidemiological evidence showing that a fetus exposed to ionizing radiation in the first three months of development was 10 times more likely to

develop cancer or leukemia than a non-irradiated fetus.<sup>6</sup> In 1962, Dr. Stewart's work was vindicated by Dr. Brian MacMahon of the Harvard School of Public Health. Dr. MacMahon's studies found that cancer mortality was 40 percent higher in children born to women who had been X-rayed while pregnant.<sup>7</sup>

Nearly 20 years elapsed before the American public was sufficiently warned about the dangers of X-radiation during pregnancy. Experts fought for almost two decades to obtain a national standard recommending that pregnant women not be given pelvic or abdominal X-rays except for emergencies. Finally, in 1980, the FDA and the American College of Obstetricians and Gynecologists launched a massive public education program warning of the dangers of pregnancy X-rays.

From 1957 to 1961, pregnant women were prescribed thalidomide for nausea; thalidomide was banned after being proven to be a teratogen (an agent or influence known to cause severe malformities in the developing embryo). The synthetic hormone diethylstilbestrol (DES) was given to pregnant women from 1938 to 1971 to prevent miscarriages. After DES was linked to the abnormal development of fetal sex organs, its use was discontinued.

Now here we go again with wireless microwaves. Thanks to powerful vested interests who use political power and a concerted information blackout to obscure the realities of science, millions of uninformed women expose their fetuses to unlimited amounts of near-field wireless radiation. None have been officially warned that microwaves are demonstrated in labs across the world to cause cellular and genetic damage identical to that of both ionizing radiation and dangerous chemicals.

What is most disheartening is that, commensurate with the rapid and basically unregulated deployment of wireless technology over the last two decades, our childhood cancer rates are off the scale. Cancer is the second leading cause of death in American children, superseded only by accidents. More school children will die of cancer than any other disease.

### **Are we cooking our eggs?**

Perhaps no tissue in the human body is more radiation sensitive than the "granulosa" cells of the developing and mature ovarian follicles in human female ovaries. Human females are born with their eggs. The chemical or radiation damage sustained by these cells before women conceive absolutely determines the success of future pregnancies, as well as the health of babies. But how many school girls today understand that sitting with wireless computers on their laps exposes their ova to the equivalent of continuous X-radiation?

"Cell phones give off radiation any time they are turned on so that they can communicate with base stations," says IOU Bloomfield, PhD, professor of physics at the University of Virginia.<sup>8</sup> This means that even on stand-by, a cell phone emits imperceptible radio signals into the body of a woman wearing that phone near her ovaries.

Frequency tests show that cell phone radiation is the most powerful during the signaling phase. When the phone rings, it begins abruptly transmitting microwaves at a power density that may spike up to over 100 microwatts per centimeter squared (100uW/cm<sup>2</sup>). This near-field dose is at least 1,000 times higher than microwave power densities shown in laboratory tests to have numerous biological repercussions in animals and

human beings. This dose is also 1,000 times higher than the maximum exposure limit currently recommended for humans by the 2007 BioInitiative Report. Leading scientists who contributed to this master work compiled hundreds of medical studies in order to arrive at a consensus recommendation that human exposure to pulsed microwaves be limited to no more than 0.1uW/cm<sup>2</sup>.<sup>9</sup>

At greatest risk for microwave radiation damage is the mitochondrion organelle within each female egg cell. The mitochondrion is a tiny, membrane-enclosed "power plant" which generates the cell's supply of chemical energy (ATP). Mitochondria are involved in a range of processes such as signaling, cellular differentiation and cell death, as well as controlling cell growth. Within each mitochondrion are up to one million molecules of mitochondrial DNA (mtDNA). Once damaged, the mtDNA are incapable of repairing themselves due to their low histone protein content.

UK physicist and radiation expert Professor Barrie Trower explains how wireless microwaves can radically alter human genetics through mitochondrial damage: "Permanent low level microwave exposure induces chronic nitrosative and oxidative stress to human cells. The mitochondrial DNA is even more susceptible to this stress than the DNA in the cell nucleus and it can become irreversibly damaged. Damaged mtDNA causes mitochondropathy, which is transmitted by the maternal egg from mother to daughter through each succeeding generation forever. Mitochondropathy is at the root of many inheritable illnesses including MS, Parkinson's, diabetes, arteriosclerosis, Alzheimer's and cancer."<sup>10</sup>

Each time a wireless device begins transmitting data near a woman's ovaries, that radiation endangers the integrity of the mtDNA in egg cells slated to become embryos. Yet millions of girls and young women wear and utilize these wireless X-rayers near their reproductive organs with no informed concern whatsoever.

### **Don't bank on "hot" sperm**

Recent studies confirm that cell phone radiation can drastically affect male fertility. A 2004 Hungarian medical study of hundreds of men revealed that those who carried their mobile phones on stand-by throughout the day had a significantly lower than normal sperm count.<sup>11</sup> Also in 2004, researchers found that the use of laptop computers can impair male fertility when prolonged use heats the testicles.<sup>12</sup>

Australian researchers have reported that the global service mobile (GSM) phone frequency of 900 megahertz has a "significant genotoxic effect on epididymal spermatozoa."<sup>13</sup> Epididymal spermatozoa are sperm cells stored in the epididymis after production in the testes. In 2005, German researchers found alterations in gonadal function of mice exposed to GSM cell phone radiation.<sup>14</sup> By 2006, the American Society for Reproductive Medicine reported that men who use cell phones have poor quality sperm due to electromagnetic radiation emitted by the devices. Data confirms that all four parameters of sperm potency are affected: count, motility, viability and appearance.

<sup>15</sup>

In 2007, researchers with the reproductive center at Glickman Urological Institute in Cleveland, Ohio, reported that a study of 361 infertile male patients showed cell phone users had decreased semen quality compared to non-users. The decrease in sperm quality was directly proportionate to the duration of wireless exposure. The longer the cell phone use each day, the worse the sperm.<sup>16</sup> Sperm is incapable of repairing itself.

Researchers in India have now compiled so much compelling evidence of sperm damage from cell phone radiation that the Indian government is launching a five-year study to include research on how wireless microwaves affect reproductive health. The study will recruit 4000 human subjects.<sup>17</sup>



The scientific evidence is convincing: cell phone radiation, even from phones on standby, greatly increases the risk of sterility and birth defects. Reasonable people should consider prioritizing children and the survival of the human race as more important than style, fashion and convenience.

### **Damaged reproductive cells can make damaged babies**

Like damaged ova cells, damaged sperm produced by millions of Generation X-rayers has the potential to make damaged babies. A NATO document states, "The motility of a cell may be decreased following irradiation. However, the presence of normal motility does not imply the absence of radiation injury. Irradiated spermatozoa, for example, may retain their motility and be capable of fertilization while carrying radiation-induced genetic changes which may alter subsequent embryogenesis."<sup>18</sup>

Charles Muller, lab director of the Male Fertility Clinic at the University of Washington in Seattle concurs: "One of the scariest things we're finding is that sperm DNA is damaged by even low levels of free radicals. Whereas high levels of damage lead to infertility, miscarriages or spontaneous abortions, low levels chew up the DNA but the sperm can still fertilize."<sup>19</sup> Radiation increases natural mutation rates because it is a major cause of free radical damage.

When chromosome damage to reproductive germ cells is slight and there is no actual loss of genetic material, the offspring will be viable. But the damage can become increasingly apparent in each successive generation. NATO experts note that radiation effects may be reflected in not only first generation offspring but also in subsequent generations. They confirm that mutations are "permanent in regards to future generations."<sup>20</sup> By 2002, British researchers announced that they had obtained a partial understanding of the mechanisms by which radiation damage can be inherited by generations down the line.<sup>21</sup>

Germane to the issue is growing evidence that many environmental factors experienced by previous generations can have a magnified effect on descendants decades later. For example, there appears to be a strong link between the diet of grandparents and both the diabetes rate and life expectancy of their grandchildren. Epigeneticists now believe that the ramifications of famine may actually be imprinted on human eggs and sperm.<sup>22</sup> In 2005, California researchers reported that grandmothers who smoke are twice as likely to have grandchildren who develop childhood asthma.<sup>23</sup>

If diet and toxin anomalies in one generation can trigger transgenerational traits in progeny decades down the line, how devastating will be the effects of our microwave-rich environment on the offspring of the ultra-irradiated Generation X-ray? If diabetes and asthma can be passed down through the lifestyle habits of grandparents, what will be the penalty paid by Generation X'd Out, whose progenitors are now sustaining massive eye, ear, brain and reproductive damage from unfettered exposure to wireless products?

It may be a century (too late) before scientists fully understand the devastating ramifications of what was bequeathed to posterity, decades before they were born, by the uninformed consumers of today's wireless world.

### **Pregnancy and electromagnetic frequencies don't mix**

A federal study released in 2000 revealed that about half of U.S. pregnancies result in a dead or less than healthy child.<sup>24</sup> This report was derived from statistics gleaned before millions of our young people became habituated to DNA-compromising wireless technology. University of Washington studies showed reproductive changes in lab animals exposed to microwave radiation at far lower levels than that which the FDA allows cell phones to emit into the bodies of pregnant women.<sup>25</sup> So today's pregnancy health statistics may be much worse than those reported in 2000.

There are an estimated one million miscarriages in the U.S. every year. The two main causes of miscarriage are chromosomal abnormalities and problems in the intrauterine environment. Among the most potent environmental risks for miscarriage is not only ionizing radiation, but also non-ionizing electromagnetic radiation across the spectrum, especially microwaves. In the late '90s, French scientists confirmed that chick embryos exposed to cell phone radiation during their 21-day incubation period were five times less likely to survive than unexposed chicks.<sup>26</sup>

New Zealand radiation expert Dr. Neil Cherry wrote in 2000: "When all the studies are taken together, they form a comprehensive and compelling body of research to show that microwave exposure of mothers leads to a significant increase in early pregnancy miscarriage."<sup>27</sup> More recent studies have reported a correlation between spontaneous abortion and ELF magnetic field exposures. One of these was a survey of 900 pregnant women less than 10 weeks into pregnancy who wore a monitor to record their daily exposure to electromagnetic radiation between 40 and 800 hertz. Those with the higher peak exposure—over 16 milligauss—were found to have an 80 percent increase in the risk of miscarriage.<sup>28</sup> Wireless communications devices emitting pulsing microwaves also propagate a broad array of ELF electromagnetic frequencies, including 2, 8 and 217 hertz.

On August 22, 2008, *ABC News* affirmed that of the 23 richest countries in the world, the U.S. has the highest infant mortality rate. One third of infant deaths are due to premature birth, with one in eight U.S. babies born premature. Microwave radiation is indicted for causing both premature births and low fetal birth weight.<sup>29</sup>

### **Toxic chemicals + rays = double trouble**

An exacerbating effect on America's deplorable pregnancy statistics may be a deadly combination of both chemical and radiation toxicity during pregnancy. In 2005, a report by the Environmental Working Group revealed that unborn babies in the uterus are "soaking in a stew of chemicals." Researchers had found 287 chemical contaminants in

umbilical cord blood. Of those chemicals, 180 cause cancer in humans or animals, 217 are toxic to the brain and nervous system and 208 cause birth defects in animals.<sup>30</sup> It is not just industrial chemicals that threaten the unborn. Over 90 percent of the hundreds of medical drugs approved by the FDA between 1980 and 2000 have never been properly tested or labeled for their teratogenic potential.<sup>31</sup>

Such radical chemical contamination of the human species is especially dangerous in the wireless age because RF/microwaves are known to increase the effects of some chemical mutagens. A 1996 report from Belgium showed that close range exposure to microwaves emanating from wireless communications base stations increased the effects of a DNA-damaging agent on human blood cells, leading to increased chromosomal aberrations.<sup>32</sup> A 2008 medical report from Iran says that mobile phone radiation causes the release of a significant amount of mercury into the mucous membranes of people with amalgam restorations (tooth fillings).<sup>33</sup>

Common sense tells us that a combination of toxic chemicals and toxic radiation can amplify damage to human tissues, especially in the fetus. While domestic and international exposure standards for wireless radiation are being debated in general, there are no standardized advisories on the subject available to the public. A 2005 paper on the sensitivity of children to electromagnetic fields, published by the *Journal of the American Academy of Pediatrics*, admits that studies of the effects of electromagnetic fields on pregnancy are completely inadequate.<sup>34</sup> Therefore, pregnant women and their physicians are forced to adopt individual precautionary measures regarding both toxic chemical and wireless radiation exposure during pregnancy.

### **A history lesson is valuable here**

Since the Cold War, the U.S. government has known that microwaves are genetically hazardous. Beginning in 1953 and continuing intermittently for about three decades, the Russian Soviets used microwaves to covertly attack the U.S. embassy staff in Moscow, Russia. The ongoing irradiation campaign affected about 1,800 employees and 3,000 dependents housed at the embassy during this period.<sup>35</sup>

The Russians targeted the U.S. embassy with 2.4 to 4.1 gigahertz, a range within the same realm of frequencies blasting from America's wireless cell phones, in-house cordless phones, wireless computers, WiFi systems and cell towers. The Russians mainly used a power density of around five to 18 microwatts per square centimeter (5-18 uW/cm<sup>2</sup>).<sup>36</sup>

In the mid 1970s, a Johns Hopkins medical team under direction of Dr. Abraham Lilienfeld was commissioned by the U.S. State Department to study the health effects of the Moscow irradiation on our embassy staffers. The draft report documented numerous symptoms of radiation poisoning, including immune system disorders, high white blood cell counts, chronic fatigue, blurred vision, cataracts and muscle aches. Information on cancer was deliberately withheld from the Lilienfeld team, but it was later reported that cancer incidence among embassy staff was four times normal.<sup>37</sup>

Most individuals among the irradiated staff were protected by the stone structure of the embassy building and therefore they received an estimated average of only 0.19 uWatts/cm<sup>2</sup>. Nevertheless, reproductive problems among the irradiated Moscow personnel included abnormal red and white blood cells, above average chromosomal aberrations, higher than normal rates of miscarriage plus pregnancy complications.<sup>38</sup> Embassy staff

with blood abnormalities were advised not to conceive children until six months after their somatic levels had returned to normal in a non-irradiated environment.<sup>39</sup>

It should also be noted that then U.S. State Department chief medical officer Herbert Pollack sanitized the conclusions of the Lilienfield report. The final report falsely concluded that no important health effects were associated with the embassy microwave exposure.<sup>40</sup>

Compare the adverse effects on U.S. Russian embassy personnel and their families exposed at mainly 0.19 microwatts/cm<sup>2</sup> to current federal exposure guidelines. Depending on broadcast frequency, the federal government allows the telecom industry to deliver a maximum of 600 to 1000 microwatts/cm<sup>2</sup> of communications radiation into populated areas across the nation. Adding insult to injury, the Federal Communications Commission (FCC)--the single agency with authority to regulate the communications industry--has neither money, manpower nor motive to verify compliance with its dangerous exposure guidelines.

### **We can see the damage**

An estimated one in 20 babies born in the U.S. each year has an obvious birth defect. That equates to about 200,000 babies per about four million live births annually. Many additional childhood defects and impairments can be subtle, requiring years to become apparent. Millions of parents now cope with often inexplicable child health problems, including severe allergies, diabetes, body weight abnormalities, plus serious eye, ear and skin conditions.

Perhaps the most alarming epidemic among our younger generations involves the increasing incidence of neurological and developmental delay disorders. The 2003 National Survey of Children's Health found that one in five American children has a learning disability or attention deficit disorder. Studies through decades link these conditions to toxic environmental conditions, including microwave radiation exposure.<sup>41</sup>

A recent study of over 13,000 Danish women confirms that women who had used cell phones during pregnancy produced children who were 54 percent more likely to manifest hyperactivity and difficulties with conduct and emotion by the time they entered school. Coordinated by American and Danish scientists, this survey found that if children exposed to cell phone radiation in the womb later used cell phones themselves, they were 80 percent more likely to suffer behavior and emotional problems than children who were not exposed.<sup>42</sup>

In 2000, Dr. Ross Adey working at the University of California, Riverside, showed that pregnant rats exposed to Iridium cell phone radiation produced fetuses with significantly decreased brain activity, compared to non-exposed fetuses.<sup>43</sup> The incidence of human autism, a complex affliction manifesting a broad spectrum of brain abnormalities, has increased dramatically since the wireless age began. Scientists say clues are accumulating that RF/microwave exposure could be an important but overlooked factor in the autism epidemic.<sup>44</sup>

There is also indication that the synergy between RF/microwave radiation and chemicals/metals may be involved in autistic disorders. A 2007 report on autistic children and electromagnetic exposure concluded that the impact of this radiation "could be direct by facilitating early clinical onset of symptoms or indirect, including

trapping heavy metals in cells and both accelerating the onset of symptoms caused by heavy metal toxicity as well as impeding therapeutic clearing [of these metals]."<sup>45</sup>

In 2008, researchers announced that missing DNA snippets on chromosome 16 is a mutation that raises the risk of autism by 100 times. Some suspect that this aberration is the tip of the iceberg concerning genetic errors involved in the syndrome.<sup>46</sup> It is generally agreed that such chromosome aberrations can occur before fertilization, which brings us back to chemical and/or radiation-damaged sperm and ova.

### **The powers-that-be don't want this information made public**

An impressive number of researchers through the decades have published studies linking RF/microwave radiation to adverse effects on genetics and reproduction, even at very low, non-thermal exposure rates. In 1997, Dr. John R. Goldsmith of Israel's Ben-Gurion University published a historical compendium of such studies. Dr. Goldsmith noted that scientists had known for decades that the three major human effects of microwaves are spontaneous abortion, blood cell mutations and increased childhood cancers.<sup>47</sup>

When the results of RF/microwave-damning studies were published, "offending" scientists throughout the years have consistently found their research programs prematurely terminated, their careers derailed and their reputations defamed. This is the case of the brilliant and accomplished Dr. Henry Lai. Working at the University of Washington, Dr. Lai and his colleagues raised the ire of the wireless communications industry after reporting that microwaves at low exposure levels badly damage DNA. Lai was subsequently subjected to dirty politics and attempts to sabotage his career.<sup>48</sup>

When Dr. Jerry Phillips, under contract to Motorola in the '90s, published his findings that cell phone frequencies have an important biological impact on DNA, he too was threatened and ostracized by the wireless industry. Phillips had earlier discovered that radio frequency fields can influence the growth of tumors.

Today, almost all wireless health studies in the U.S. are funded by a tangled web of special interest groups which directly or indirectly profit from the wireless industry. These tainted, conflicted-interest studies routinely give wireless radiation a clean bill of health. "A lot of studies done right now are done purely as PR tools for the industry," confirms Dr. Phillips.<sup>49</sup>

The wireless industry is enabled and subsidized by the U.S. government, which also has an array of economic and political reasons for obfuscating microwave health issues. The reality is, the feds and the wireless industry are up to their proverbial necks in liability if the potent teratogenicity of microwaves becomes widely understood. Therefore, those who increasingly microwave-pollute both military and civilian populations have thus far demonstrated their willingness to "lie and deny" regarding the dangers of RF/microwaves.

Author Paul Brodeur wrote in *The Zapping of America* that the "...government and the military have long suppressed information about true genetic effects of microwaves in human beings and covered up a number of potentially embarrassing situations in which such effects have been observed."<sup>50</sup>

## **Babies have been sacrificed to protect the Establishment**

One such situation was the Fort Rucker affair of the early 1970s.<sup>51</sup> At the time, Fort Rucker in Alabama had 46 radar installations within 30 miles of the base. Aviation radar technology, such as that emitting from Fort Rucker at the time, employs many bands of high frequency microwaves. In 1971, an expert with the University of Alabama discovered that a startling number of newborns delivered at the base hospital suffered congenital abnormalities, including club foot, cleft palate, genital, heart and respiratory problems. There was also a high fetal death rate. About the same time, researchers discovered a high fetal death rate near Elgin Air Force Base in Florida, another aviation base with a massive concentration of radar installations.

A preliminary report on the Fort Rucker birth defect cluster completed by the Southern Research Institute for the U.S. Environmental Protection Agency urged follow-up studies to determine how prenatal deaths and infant birth defects correlate with parental microwave exposure at aviation bases. Such a study was warranted because nearly a decade earlier, researchers at Johns Hopkins had found an apparent association between radar exposure and Down's Syndrome.<sup>52</sup>

Rather than acknowledge a possible radiation link to myriad illnesses among civilian and military personnel, or act to prevent irresponsible exposure, military networks derailed the investigation and quashed preliminary study results. In describing the devious chicanery of military brass in stopping the Fort Rucker investigation and discouraging future studies, Brodeur wrote that the case "...shows the lengths to which the military establishment will go to ignore the genetic effects of exposure to microwave radiation."

Brodeur warned, "Above all, it provides a warning in bold relief to the Congress and to the American people. A national policy which gives the Department of Defense the power to control or thwart scientific research on the biological effects of microwaves is a policy that allows the fox to guard the chicken coop and make test animals of us all."<sup>53</sup>

## **Thirty years later the fox still rules**

And test animals we certainly are. The United States now has about 2 million licensed cellular communications installations and antennas blanketing the nation with pulsed data transmission microwaves. Wireless communications antennas operate in the same electromagnetic spectrum as radar antennas. Radar emissions can range from 3 megahertz to 110 gigahertz, which includes the numerous bands used for cell phone and other wireless services. Before the wireless revolution, radar exposure was contained mostly to military installations and airport areas. Now mobile communication installations expose nearly everyone to massive, incessant doses of chromosome-damaging energy within the radar spectrum.

The wireless industry says that it must continue to increase its nationwide network of microwave antennas in our neighborhoods, commercial centers, parks and school zones. It says that the emergence of broadband services — which enable cell phone video/gaming/music plus data downloads for e-mail and business applications — demands ever more network capacity.<sup>54</sup> To meet increasing consumer demand for an evolving array of third generation wireless products and services, the industry says it is dividing its service areas into smaller cells, requiring more transmitters in tighter spaces. Service providers are reducing the height of existing antenna poles, while rushing to attach thousands of new antennas to buildings and structures of all kinds, even utility poles.

Meanwhile, WiMAX promoters are setting up powerful new WiFi networks across the nation.

If informed Americans cannot reverse this trend, eventually no one anywhere will escape a tsunami of a pernicious, mutagenic radiation that permeates and punishes our bodies 24 hours a day. The FCC admits it has expertise in neither health matters nor radio engineering. Its current and notorious exposure standards were developed by the Institute of Electrical and Electronics Engineers (IEEE), which bills itself as the world's leading professional association for the advancement of technology.

Louis Slesin, publisher of *Microwave News* states: "Essentially, the users of RF and microwave technology—the military, its contractors and the communications industry—wrote the IEEE RF standard. For example, of the two co-chairs of the committee that developed the most recent safety standard, one works for Motorola and the other for the U.S. Navy and the Air Force. What are the odds that the safety standard serves their interests? I'd bet the ranch on it!"<sup>55</sup> Betting the ranch is one thing, but wagering the lives of millions of fetuses and infants on FCC's outdated RF/microwave exposure guidelines is genocidal. Scientists across the globe are adamant that these self-serving guidelines are scientifically indefensible, extremely dangerous and must be immediately and drastically revised.<sup>56</sup>

### **Is ultrasound not so sound?**

In addition to incessant wireless radiation exposure, most fetuses are now routinely scanned several times during gestation by medical ultrasound imaging equipment. Scant weeks after a human embryo is implanted in-utero, at a time when the newly united cells are the most vulnerable, medical personnel engage in an ultrasound inquisition to determine its gestational age. A vaginal probe is often used to position a high frequency sound transducer as close as possible to the tiny new life form.

Ultrasound technology vibrates a fetus with mechanical pressure waves at millions of cycles per second. A scan can last up to one hour. The power density used is around 720 milliwatts/cm<sup>2</sup>—eight times the power density allowed prior to 1993.<sup>57</sup> Secondary vibrations inherent in ultrasound waves are said to produce intrauterine noise as loud as 100 decibels, despite the fact that noise levels over 85 decibels are designated as harmful to human hearing. The fetus reportedly hears an ultrasound scan at a high pitch which is, comparatively speaking, as loud as a train pulling into a station.<sup>58</sup>

The ultra powerful Doppler ultrasound equipment is especially brutal. One minute of Doppler is equal to 35 minutes of non-Doppler imaging. Doppler is often used on pregnant women transvaginally. Often employed for monitoring fetal circulation, Doppler equipment has potential to produce biologically significant temperature hikes in both bone and tissue interfaces.<sup>59</sup> One report notes that brain structures lying close to the fetal skull, such as the pituitary gland and the hypothalamus, are at special risk of over-heating, while on-screen temperature safety indexes can give false temperature readings.<sup>60</sup>

Powerful 3-D and 4-D ultrasound equipment, which can produce cuddly 3-dimensional images, is used by opportunists to create fetal "portraits" and videos for profit.<sup>61</sup> These merciless, inflammation-producing scanning sessions can last up to 90 minutes. The FDA warns that such frivolous use of ultrasound is dangerous, but critics complain that the agency has yet to enforce a ban on this commercial exploitation of the fetus.

In 1999, Irish researchers found that a 15-minute, 8 megahertz ultrasound scan of mice produced abnormal rate of cell division and abnormal cell death. Among these researchers was Dr. Patrick Brennan who suspects that the scans may be damaging human fetal DNA, resulting in a delay of cell division and repair, or in the switching on of a tumor suppressor gene that controls cell death.<sup>62</sup>

In 2004, Pasko Rakic, chairman of the Neurobiology Department at Yale University, reported disruption of the normal migration of cells in the brains of fetal mice following ultrasound scans. Brain cells failed to grow into their proper positions and remained scattered in incorrect parts of the brain.<sup>63</sup> A number of other studies have established a possible correlation between prenatal ultrasound exposure and dyslexia, delayed speech development, reduced birth weight and non-right handedness.<sup>64</sup> Left-handedness is statistically linked to many cognitive and developmental problems, ranging from learning difficulties to autism and epilepsy.

There are reports that the FDA has failed to ensure that medical sonographers are properly trained. Ultrasound expert Dr. Jacques Abramowicz of Rush University is quoted as saying that only two to three percent of ultrasound technicians understand the complexities of thermal and mechanical indexes.<sup>65</sup> While the American Institute of Ultrasound Medicine (AIUM) denies negative biological effects of ultrasound on fetuses, it admits to the possibility that negative outcomes may be identified in the future. No one yet knows to what extent our devastating rates of childhood diabetes, allergy and learning impairment may be rooted in over-use of fetal monitoring by poorly trained technicians.



This 2005 photo ran with an article in the UK Guardian describing how this microwave-emitting electronic "tag" was sold to British mothers as a deterrent for abduction.

### **America's infants are on the wireless frontline**

Medical researchers from Italy's University of Siena Department of Pediatrics, Obstetrics and Reproductive Medicine reported that extremely low frequency (ELF) electrical currents given off by modern hospital incubators can interfere with newborns' heart rates. The study, published in May, 2008, showed that ELF waves increase neonates' risk for sudden infant death syndrome. The magnetic fields from these ELF waves were found to cut the "variability" of infant heart rates in half.

Heart rate variability is healthy and shows that the nervous system is working correctly. Variability reduction, on the other hand, is known to be an indicator of heart disease, arrhythmia and stroke. The Italian study warns that interfering with heart rate variability can hinder nervous system development and recommends that incubator manufacturers take steps to shield babies from electrical fields caused by motors and fans.<sup>66</sup>

How bizarre, then, is the fact that hospitals throughout U.S. are clamping high frequency radio tracking devices on the appendages of at least one million American newborns each year. High frequency radio "tags" are an accoutrement of so-called "infant protection" systems peddled by XMark Corporation of Ontario, Canada.<sup>67</sup> XMark is a subsidiary of the infamous VeriChip Corporation which markets the injectable VeriChip ID tag for humans. (See "[Microchip implants cause fast-growing malignant tumors in lab animals](#)," for a report on the cancer-causing effects of implanted ID chips.)

XMark offers two types of in-hospital tracking systems for newborns: "Hugs" and "Halo." Medical institutions participating in these programs must transform their maternity wards into RF/microwave "hot" zones, complete with a grid of wireless sensors linked to computers capable of processing information from numerous transmitters simultaneously.

The Hugs system includes a mommy transmitter dubbed "Kisses." Mother-and-child transmitters are programmed to work *in sync* so mom can recognize her child from his high frequency signals, which mesh with hers in an electronic lullaby. XMark promotional literature mentions nothing about the physiological effects of Hugs' radio waves, which zap newborns with repetitive micro-blasts of 217 million hertz.

The horrendous Halo transmitters propagate a whopping 433.92 million hertz, a frequency officially within the microwave realm. Halo radio tags for newborns are part of a wireless system programmed to deactivate automatic doors and elevators while the location and identity of staff and infants are instantly transmitted to command headquarters. The 433.92 megahertz employed by the Halo system is endorsed by the Department of Defense (DOD) as its active RFID standard. This frequency is used for a variety of DOD tracking and surveillance modalities.<sup>68</sup>

Infant tracking is a radiation-rich glimpse into the portals of a Star Wars medical world which purports to make newborns "safe" by blasting them with continuous torrents of dangerous high frequencies. Microwave radiation is classified as a "chronic" poison by the National Institutes of Health.<sup>69</sup> Yet, Orwellian infant tracking systems such as Halo have been approved by the FDA with neither pre-market health research nor follow-up studies needed to assess the long term effects of such prolonged electromagnetic assault on infant immunity, neurological development and circulatory health.

### **Many babies are condemned to radiation-toxic homes**

When an infant escapes his hospital transmitter, he may be taken to a home where wireless reigns. These days a baby's first habitat may be a den of electromagnetic wave pollution gushing from wireless computer systems, microwave ovens, gigahertz baby monitors, home security systems and the nefarious, always-broadcasting Digital Enhanced Cordless Telephone (DECT) bases.

Baby's home may also be near communications transmitters which spew into his neighborhood--into his very bassinet--a torrent of microwave radiation heard as a high

pitched scream by audio detection equipment. Microwave frequencies emitted 24/7 by neighborhood transmitters pass easily through most construction materials to enter dwellings, then resonate off objects to reverberate into human flesh.

While still toddlers, the children of Generation X-ray will likely be encouraged to use cell and cordless household phones, devices which will deeply infiltrate tiny skulls with additional mega-doses of electro-dissonance. A most troubling aspect is the 2005 medical study completed in India which found that adults exposed to as little as one hour of cell phone radiation per day have an average of 40 to 60 percent of their cells manifesting damaged DNA.<sup>70</sup>

What tragedies lurk in the future for Generation X-ray's children who bear subtle DNA aberrations from before conception, then sustain additional DNA damage during their formative years in a full-throttle wireless world? How many generations can sustain 40-60 percent DNA damage before humanity becomes so genetically compromised that it is literally threatened with extinction?

### **Is the global wireless revolution a population reduction project?**

There is an intriguing possibility that the global torrent of ever-increasing wireless radiation might be an important link in a furtive master plan to drastically reduce the world's population. We have a number of important clues that microwaves could be used as an effective form of contraception, administered covertly to the world's masses through seductive technological means.

Research has shown that rodents exposed to cell phone radiation have less testosterone in their bloodstreams, resulting in diminished sexual activity.<sup>71</sup> In 2008, a public health agency in Norway published a study of navy personnel exposed to radio frequency electromagnetic radiation. It showed that the greater the exposure to this radiation, the higher the prevalence of involuntary childlessness.<sup>72</sup>

Greek researchers studying the effects of radio frequency on rodent reproduction placed groups of mice in strategic locations to ensure their irradiation from a broadcasting RF antenna farm. Mice who received less than 1 microwatt/cm<sup>2</sup> had a progressive decrease in newborns and became irreversibly sterile after five generations. The mice receiving a tad over 1 microwatt/cm<sup>2</sup> regressed to sterility after only three generations.<sup>73</sup>

A most interesting clue comes from a 1985 Chinese study titled "Effects of Microwave Contraception on Human Serum Testosterone and Luteinizing Hormone." The study was conducted on human males and the abstract states that "...the microwave dose used for contraception seems to cause damage in Leydig cell function...and then influence(s) endocrine function of testis."<sup>74</sup> It is not clear from this report exactly what microwave dose was found by the Chinese to be contraceptive. But the fact that today's cell phone radiation is widely documented as damaging, even lethal to human sperm cells, suggests that our dangerously high emission and exposure standards could have been set specifically for their potent contraceptive potential.

Greek researchers at the University of Athens confirmed in 2006 that GSM 900 and 1800 (digital) megahertz radiation has a radical impact on the ability of living creatures to reproduce. These frequencies are within the realm of wireless radiation being broadcast across America for mobile services. The *drosophila* (fruit fly) was chosen for this study because the insect's cellular processes are identical to those of humans. Only a few minutes of exposure to this cell phone radiation per day—at power intensities

now common in our environment—cut the insects' ability to reproduce by 60 percent. Both sexes were affected.

Of great importance was the finding that exposed male flies suffered DNA fragmentation in their gonadal cells and the females showed induced cell death in a large number of their ovarian egg chambers. The researchers warned, "...Digital mobile telephony radiation nowadays exert an intense biological action able to kill cells, damage DNA or decrease dramatically the reproductive capacity of living organisms."<sup>75</sup>

Chilling is the possibility that there might exist a mindset among ruling elites that humans who make it through the gauntlet of pre-conception radiation and radiation-induced spontaneous abortion should have their lives drastically shortened to spare societies the economic burden of elderly people.

Governments and the wireless communications industry stampeding humanity into compulsory and continuous wireless exposure are undoubtedly apprised of the hundreds of medical studies demonstrating that low level communications microwaves not only initiate, but also nourish and promote human cancers.<sup>76</sup> The perpetrators must also be aware of the widespread circulatory and cardiac damage being unleashed by the wireless revolution. Cell phone radiation quickly causes red blood cells to clump together and also to leak hemoglobin. These abnormal blood conditions can precipitate heart disease, kidney stones and strokes.<sup>77</sup>

A recent medical study found that both fetuses and newborns exposed to cell phone radiation while their mothers conversed for 10 minutes experienced significant increases in heart rate and worrisome decreases in cardiac output.<sup>78</sup> Thus we see that the wireless age endangers the life blood, even the very hearts of the tiny ones fated to be born as "Generation X'd Out."

### **What can we do to save the babies?**

An amoral and ravenous congressional-military-industrial complex has groomed the youngsters of Generation X-ray to become hard-core patriots of wireless technology in the same ruthless way the asbestos and tobacco industries seduced and murdered generations past. The Cellular Telecommunications Industry Association (CTIA) boasts on its website that teenagers, defined as a "huge consumer market segment," are currently pumping \$100 billion a year into the industry's coffers.<sup>79</sup>

Deceived and used as pawns, our youngsters are left utterly ignorant concerning the devastating wireless radiation hazards to themselves and their posterity. When young people are told about the hazards of anything, they traditionally discard the facts and pursue their chosen avenues of self gratification as predictable acts of rebellion.

Generation X-ray is no different in its obsession with wireless conveniences; it seems content to live in a self-absorbed universe devoid of logic, critical thinking and accountability. Many youth appear incapable of caring about future generations. We are no longer a nation of healthy free-thinkers, but a nation of obsessive, sickly phone button punchers, virtual game players and compulsive text messengers.

Given the science, such ignorance and apathy ensures that millions of new and innocent lives are destined for cruel suffering and impairment. Thanks to a silent but violent electromagnetic enemy that is destroying their fragile DNA, newborns tumbling into our barbaric wireless age are creatures of a zillion possibilities of chromosomal disarray,

including nervous system damage, deformed limbs, endocrine disruption and unhinged metabolic function.

Yet, hopefully, some of our young people planning to bear children are still morally and intellectually able to comprehend and act upon the latest scientific information gathered for this paper. We can also hope that older parents and grandparents apprised of these facts will exert their influence to protect the genetics of their progeny. Those who want healthy babies must take the minimal following steps:

**1. Accept the well-documented fact that microwave radiation from wireless devices is as mutagenic, teratogenic and dangerous to fetuses and infants as ionizing X-radiation and gamma waves.**

**2. Never wear or use any wireless device near reproductive organs. If you are female and have been exposing your ovaries to years of near-field wireless radiation, think carefully before you decide to become pregnant. If you are a male, and plan to father children, make sure that you stop using wireless devices well in advance of fertilization to reduce the chance of procreation with damaged sperm.**

**3. Learn to test your personal environment for wireless microwave contamination. If you are pregnant or plan to be, remove yourself from microwave-contaminated areas at any cost. Never stand near a microwave oven when pregnant, as all such ovens leak radiation and can affect a large area.**

**4. Prudent avoidance of routine pregnancy ultrasound scans is the best policy, says Internet health advisor Dr. Joseph Mercola. These scans should be used only in the event of medical necessity, he advises.**

**5. Refuse to have your newborn radio-tagged by your birthing hospital. Since a tracking system requires a fog of ambient RF/microwave radiation which could affect even non-tagged infants, it is prudent to choose a hospital which does not employ wireless systems in the maternity ward, or have your baby at home.**

**6. Make sure that your infant is nurtured in a microwave-free home. Remove all DECT cordless phones, wireless security systems, WLAN wireless communications systems and microwave ovens. Never microwave-heat infant formulas or food.**

**7. Make sure that cell tower or roof top communications antennas are not poisoning your home. If you discover that your neighborhood lies in the down beam of microwave antennas, which are saturating the interior of your home with a dangerous carcinogen, either take steps to apply expensive radiation barrier materials, or move to a radiation-free zone.**

**8. Never use any wireless device while near an infant or young child. Drastically reduce the use of all personal wireless devices, and reserve their use for emergency communication. The more people use cell phones in their homes, the more transmitters will be placed in our neighborhoods.**

**9. Retain your home and office landlines. Telecom companies are using pricing incentives to encourage the elimination of landline connections because air interface is more profitable. Unless we can educate enough people in time, our options for safe landline communications may vanish, leaving our kids at even more risk.**

The scientific evidence is massive and irrefutable. Our little ones face a lifetime of disability, pain and deprivation from ever-increasing torrents of man-made, commercial radiation capable of destroying human genetic integrity. If you believe that humanity should NOT be reduced to a species of genetic freaks on the way to extinction, assist the radiation awareness movement by doing your own research and then sharing with others the documented information on wireless hazards to human DNA.

There is no time to waste while confronted with the life-and-death issues associated with the brazen wireless radiation assault upon our kids. Our mission requires persistence, patience and sacrifice. It is high time that we speak up and take action now — for the sake of the helpless and the unborn. What we do and say today will hugely affect generations to come.

## Notes for Generation X'd Out

**Note:** For the latest report from Professor Lennart Hardell concerning the 5-fold risk of brain tumors in kids who begin using mobile phones in childhood see: "Mobile Phone Use 'Raises Children's Risk of Brain Cancer Fivefold'," *The Independent*, UK, 9-21-2008. Hardell is with the Department of Oncology, University Hospital, Orebro, Sweden. For the latest cancer statistics on American kids, see *CA: A Cancer Journal for Clinicians*, published bi-monthly by the American Cancer Society.

1. "Mobile Phone Users 'Addicted to Radiation,'" *Observer*, UK, 3-14-1999. Mobile radiation stimulates a morphine-like chemical in the brain: "The mobile high is triggered by endorphins released in the brain when microwave radiation from the phone enters the ear."

2. "Key Scientific Evidence and Public Health Policy Recommendations," Dr. David O. Carpenter and Cindy Sage, Prepared for the BioInitiative Working Group, *BioInitiative Report*, July 2007, p. 7.

3. An in-depth report on the REFLEX project can be found online: *Health and Electromagnetic Fields: EU-funded research into the Impacts of Electromagnetic Fields and Mobile Phones on Health* published by the European Commission, 02-29-2008. A list of the 17 additional DNA studies can be found at microwavenews.com. See September 3, 2008 issue of *Microwave News*.

4. Find references for these three chromosome studies at: microwavenews.com. See September 3, 2008 issue of *Microwave News*.

5. *NATO Handbook on the Medical Aspects of NBC Defensive Operations*, Chapter five, "Biophysical and Biological Effects of Ionizing Radiation," Section III, 511.

6. "Survey of Childhood Malignancies," Stewart, et al., *British Medical Journal* (1958), p. 1495. Also: "Radiation Dose Effects in Relation to Obstetrics, X Ray and Childhood Cancer," Alice Stewart and George W. Kneale, *Lancet* 1 (1970): 1185-1187.

7. "Prenatal X-ray Exposure and Childhood Cancer," Brian MacMahon, *Journal of the National Cancer Institute* 28 (1962): 1173.

8. "Dr. Bloomfield quoted in "The Cell Tolls for Thee," J. Evans, 08-06-2008, Best Life, fourwinds10.com.

9. *BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields*, September 2007. See "Summary for the Public and Conclusions."
10. Professor Barrie Trower from personal correspondence with the author.
11. "Cell Phone Use Can Reduce Sperm Count," M. Frith, *The Independent*, Uk. 06-27-2004.
12. "Laptops Can Damage Male Fertility," M. Hachman, *Extreme Tech*, 12-09-2004.
13. "Impact of Radio Frequency Electromagnetic Radiation on DNA Integrity in the Male Germline," R. Aitken, et. al, University of Newcastle, Australia, October 2004. Also: "Mobile Phone Radiation Fries Sperm—Study," T. McLean, Australian Associated Press, 10-20-2008.
14. "Effects of 1800 MHz GSM-like Exposure on the Gonadal Function and Haematological Parameters of Male Mice," Forgacs Z, et.al, FGF-Infoline, 03-11-2005.
15. "Men Who Use Mobile Phones Face Increased Risk of Infertility," J. Hope, *London Daily Mail*, 10-23-2006.
16. "Effect of Cell Phone Usage on Semen Analysis in Men Attending Infertility Clinic," A. Agarwal et. al, *Fertility and Sterility*, May 3, 2007.
17. "Can Mobiles Make You Infertile?" *The Times of India*, 6-11-2008.
18. *NATO Handbook on the Medical Aspects of NBC Defensive Operations*, Chapter five, "Cellular Effects of Ionizing Radiation" Section III, 508.
19. Muller quoted: "A Man's Shelf Life," M. Teich, *Psychology Today*, Sept-Oct. 2007.
20. *NATO Handbook on the Medical Aspects of NBC Defensive Operations*, Chapter five, "Cellular Effects of Ionizing Radiation" Section III, 512.
21. "Study: Radiation Damage May Be Inherited," Associated Press, 05-02-2002.
22. Discussion of epigenetics: *Ghost in Your Genes*, Nova and WGBH, 2006, as seen on public television. Also: "Imprint of Famine Seen in Genes of Second World War Babies 60 Years On," M. Henderson, *Times Online*, 10-28-2008.
23. "Grandmothers' Smoking Linked To Grandchildren's Asthma Decades Later," *Science Daily*, 05-06-2005.
24. "Shocking Pregnancy Statistics," Joel Sol, [www.rense.com](http://www.rense.com), 05-02-02. This statistic was in a press release from the National Research Council of the National Academy of Science Institute of Medicine, June 2000.
25. *Neurological Effects of Radio Frequency Electromagnetic Radiation*, a paper presented by Dr. Henry Lai at the Mobile Phones and Health Symposium, in Vienna, Austria, October 25-28, 1998. also: Dr. Lai: "Biological Effects of Radiofrequency Radiation from Wireless Transmission Towers." This report is Chapter three in *Cell Towers: Wireless Convenience or Environmental Hazard?* The Berkshire-Litchfield Environmental Council, Edited by B. Blake Levitt, 2000.
26. "Mobile Phones Warning to Pregnant Women," *The Telegraph*, UK, 06-28-1998.

27. *Cherry on Safe Exposure Levels*, Dr. Neil Cherry, Lincoln University, 2000. Some of the studies listed by Dr. Cherry include: Vaughan et al (1984), Taskinen et al. (1990), Lindbohm et al. (1992) and Quellet-Hellstrom and Stewart (1993.)
28. "A Population-Based Prospective Cohort Study of Personal Exposure to Magnetic Fields During Pregnancy and the Risk of Miscarriage," Li De-Kun et al., *Epidemiology*, 2002; 13:09-22.
29. *Criticism of the Proposal to Adopt the ICNRP Guidelines for Cellsites in New Zealand, ICNIRP Guideline Critique*, Dr. Neil Cherry, Lincoln University, 10/02/99. See section on reproductive outcomes, pp. 21-31.
30. "Unborn Babies Soaked in Chemicals, Survey Finds," Maggie Fox, Reuters, [www.rense.com](http://www.rense.com), 07-14-05.
31. "Teratogenicity of Recently Introduced Medications in Human Pregnancy," W. Lo et al., *Obstetrics and Gynecology*, 2002;100:465-473.
32. "954 MHz Microwaves Enhance the Mutagenic Properties of Mitomycin C," *Environmental and Molecular Mutagenesis*, Vol. 28, Issue 1 pp. 26-30, 12-21-1998.
33. "Mercury Release from Dental Amalgam Restorations after Magnetic Resonance Imaging and Following Mobile Phone Use," S. Mortazavi et al., *Pak J. Biol Sci*, 11(8): 1142-6, April 15, 2008.
34. "The Sensitivity of Children to Electromagnetic Fields," L. Kheifets et al, *Pediatrics*, Vol. 116, No. 2 August 2005, pp. 303-313.
35. *Evaluation of Health Status of Foreign Service and Other Employees from Selected Eastern European Posts, National Technical Information Service*, A. Lilienfield, PB288-163 (1978). Professor Abraham Lilienfield, head of the Epidemiology Department at Johns Hopkins School of Public Health, completed this study of the Moscow irradiation project for the U.S. State Department.
36. *Probable Health Effects Associated with Mobile Base Stations in Communities: the Need for Health Studies*, Dr. Neil Cherry, Lincoln University, NZ, August 2002.
37. "Cancer Risks from Microwaves Confirmed," Dr. Mae-Wan Ho, Institute of Science in Society, 05-24-2007.
38. *Cherry on Safe Exposure Levels*, Dr. Neil Cherry, op. cit.
39. Ibid.
40. Ibid.
41. *Neurological Effects of Radio Frequency Electromagnetic Radiation*, Lai, op. cit. This paper contains an excellent discussion of laboratory studies showing damage to brain cells, plus memory deficits and learning disabilities due to microwave exposure.
42. "Warning: Using a Mobile Phone While Pregnant Can Seriously Damage Your Baby," G. Lean, *The Independent UK*, 5-18-2008.
43. "Fetal Rat Brain Ornithine Decarboxylase (ODC) Activity and Polyamine Levels Following Exposures to Iridium Cell Phone Fields in Late Pregnancy," Ross Adey, Department of Biochemistry, University of California, Riverside. This presentation was delivered February 4, 2000 at the Bioelectromagnetics Society.

44. "A Possible Association Between Fetal/Neonatal Exposure to Radiofrequency Electromagnetic Radiation and the Increased Incidence of Autism Spectrum Disorder," R. Kane, *Medical Hypothesis*, Vol. 62, Issue 2, pp. 195-197, February 2004.
45. "Wireless Radiation in the Etiology and Treatment of Autism: Clinical Observations and Mechanisms," T. Mariea and G. Carlo, *J Aust Coll Nutr and Env Med*, Vol 26, No. 2, August 2007.
46. "Rare Genetic Glitch Hikes Risks of Autism," AP/MSNBC, 01-09-2008.
47. "Epidemiologic Evidence Relevant to Radar (Microwave) Effects," John Goldsmith, *Environmental Health Perspectives* Vol. 105, Supplement 6, 12-01-1997.
48. "Wake-up Call," R. Harrill, *Columns*, University of Washington Alumni Magazine, March 2005.
49. Phillips quoted: "Is Her Cell Phone Safe?", R.Cribb and T. Hamilton, *TheStar.com*, 11-07-2005.
50. *The Zapping of America*, Paul Brodeur, 1977. See Chapter 11: The Genetic Time Bomb.
51. Ibid.
52. "Radiation Exposure of Parents of Children with Mongolism," A. Sigler et al., *Johns Hopkins Hospital Bulletin*, 117:374.39 (1965).
53. *The Zapping of America*, op. cit. pp. 149-150.
54. CITA website: "Why Wireless Antenna Siting is Important," [www.ctia.org](http://www.ctia.org).
55. "An Interview with Louis Slesin," by the Institute for Inquiry, Box 335, Davenport, California.
56. *BioInitiative Report* op. cit. See "Summary for the Public and Conclusions."
57. "Conflicts of Interest: Understanding the Safety Issue Around Prenatal Ultrasound," M. Fuller and J. Eaton, 06-02-2005. Find this article at [vaclib.org](http://vaclib.org).
58. "Fetuses Can Hear Ultrasound Examinations," *New Scientist*, 12-04-2001.
59. "Conflicts of Interest: Understanding the Safety Issue Around Prenatal Ultrasound," op. cit.
60. "Sensitivity to Diagnostic Ultrasound in Obstetrics," S.B. Barnett and G. Kossoff, eds., *Safety of Diagnostic Ultrasound* (Carnforth, UK: Parthenon Publishing, 1998).
61. "FDA Concerned About Scrapbook Ultrasounds," M. Mendoza, AP, 03-27-2004.
62. "Ultrasound Linked to Brain Damage," R. Matthews, *The Sunday Telegraph*, UK, 10-01-2001.
63. "Ultrasound Can Affect Brain Development," AP, 08-07-2006.
64. "Ultrasound Safety Review Over Brain Damage Fears," R. Matthews, *The Telegraph*, UK, 12-15-2001. Also: "Ultrasound Scans May Disrupt Fetal Brain Development," *New Scientist*, 12-10-2001. A Swedish research team found a 32% higher rate of left-handedness among males whose mothers had been ultrasound scanned in the 1970s.
65. Dr. Abramowicz quoted in: "Conflicts of Interest: Understanding the Safety Issue Around Prenatal Ultrasound," M. Fuller and J. Eaton, 06-02-2005.

66. "Increasing the Engine-mattress Distance in Neonatal Incubators: A Way to Decrease Exposure of Infants to Electromagnetic Fields," C. V. Bellieni, et al, University of Siena, *Italian Journal of Pediatrics*, 2003; 9:74-80.
67. See XMark.com; Also: "From the Ground Up, Building Patient and Staff Security into a New Hospital," S. Elder, HC&O News, September/October 2006.
68. "US Department of Defense, 'Endorses' Active RFID Standard," A. Gonzalez, ARC Advisory Group, 12-01-2006.
69. *Haz-Map: Occupational Exposure to Hazardous Agents*, National Institutes of Health (2008). Both ionizing radiation and microwaves are listed under the chronic poison category as causes of occupational cataracts. See section titled: "Cataract, chemical or radiation induced."
70. "Genetic Damage in Mobile Phone Users: Some Preliminary Findings," Ghandi, G., *Indian J Hum Genetics*, 2005, 11:99-104.
71. "Beware--Using A Mobile Phone Can Ruin Your Sex Life," *Sunday Mirror*, 04-16-2000.
72. "Radiofrequency Electromagnetic Fields: Male Infertility and Sex Ratio Offspring," V. Baste et al, Department of Public Health and Primary Health Care, University of Bergen, Norway, *Eur J Epidemiology*, 04-16-2008.
73. "RF Radiation-induced Changes in the Prenatal Development of Mice." Magras, IN, Xenos, TD, *Bioelectromagnetics* 18 (6); 455-461, 1997.
74. "Effects of Microwave Contraception on Human Serum Testosterone and Luteinizing Hormone," Hu et al, *Shengzhi Yu Biyun*, May 1985; 5 (2) 32-4.
75. "Mobile Telephony Radiation Effects On Living Organisms," D. Panagopoulos and L.Margaritis, Department of Cell Biology, University of Athens. This report is Chapter three in *Mobile Telephones: Networks, Applications, and Performance*, Nova Science Publishers, 2008. See also the study's abstract: "Cell Death Induced by GSM 900-MHz and DCS 1800-MHz Mobile Telephony Radiation," 2006.
76. "Summary of the ECOLOG Study for T-Mobile, 2000," [www.hese-project.org](http://www.hese-project.org). In 2000, upon commission by T-Mobile, the independent Ecolog Institute in Germany gathered 220 peer-reviewed and published papers documenting cancer-initiating and cancer-promoting effects of high frequency electromagnetic fields used by mobile telephone technology.
77. "Scientists Add Kidney Damage to the List of Mobile Phone Ills," S. Harris, *Daily Mail*, UK, 12-13-1999.
78. "Fetal and Neonatal Responses Following Maternal Exposure to Mobile Phones," A. Rezk, et al, *Saudi Med J*, Feb;29 (2): 218-23, (2008).
79. "Teenagers; A Generation Unplugged: A National Survey by CTIA: The Wireless Association and Harris Interactive," [www.ctia.org](http://www.ctia.org).

