Wireless and EMF Program
Environmental Health Sciences

Cell Towers Near Homes and Schools:

A COMPREHENSIVE BRIEFING

- Scientific Evidence on Health Effects
- Legal and Liability Considerations
- Policy Analysis
- State and Local Ordinances
- School Board & PTA Actions
- Expert Recommendations

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Environmental Health Sciences

RESEARCH
Science and Policy
BRIEF

Cell Towers Radiation
Executive Summary of Health Risk

Protecting Public Health Requires Stronger Safeguards

As cell towers rapidly spread into neighborhoods, schools, and public spaces, the science indicates we must take risk mitigation measures to protect our communities, especially children.

1 Non-ionizing RF Radiation Exposure

Cell towers, including 4G and 5G antennas, emit radiofrequency (RF) radiation.

Although RF radiation is non-ionizing, decades of peer-reviewed research studies indicate that long-term, low-level exposure is not safe.

2 Growing Science on Health Effects

Studies link RF radiation to oxidative stress, DNA damage, genetic changes, neurological effects, reproductive harm, and increased cancer risk. Large, well-designed animal studies have found “clear evidence” of cancer.

Numerous studies report that people living near towers experience increased headaches, sleep problems, memory issues, depression, and dizziness, as well as cancer and biochemical changes to their blood.

In fact, the majority of scientific studies have found significant biological impacts, even at low intensities of exposure.

3 Children at Risk

Children are more vulnerable because their brains are still developing and they are more sensitive to environmental exposures.

Further, cell tower radiation is more intensely absorbed into children’s brains compared to adults. A child's thinner skull and unique physiology allow higher RF radiation exposure into brain regions critical for memory and learning.

4 Experts Recommend Caution

Hundreds of scientists and doctors advise distancing cell towers away from homes and schools due to the science reporting adverse effects.

Several U.S. school boards and numerous countries have banned cell towers on their school property.

5 Liability and Risk

Cell tower companies warn their investors of risks, but not people living near towers. Insurance authorities rate RF as “high risk” and exclude coverage for RF radiation-related damages, leaving families unprotected. Cell phone companies themselves define RF as a pollutant in cell phone protection policies and do not cover damage to phones from RF radiation.

6 Outdated Laws Lack Protections

U.S. government “safety” limits for RF radiation exposure are unchanged since 1996. They only protect against heating effects and are not designed to protect for effects of long-term exposure.

7 The U.S. Allows Highest Cell Tower Radiation Exposure

The U.S. is among the countries that allow the highest level of cell tower radiation exposure. Many countries ban cell towers at schools, but the U.S. has no safeguards for children.

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Why Cell Towers Do Not Belong At Schools

Daily RF Radiation Exposures

Cell towers emit continuous radiofrequency (RF) radiation, linked to increased cancer risk and impacts to the nervous, reproductive, and immune systems. Children absorb higher RF into their brains and bodies compared to adults.

Banned by School Boards and Entire Countries

School districts across the United States—from Los Angeles, CA to Loudoun County, VA—as well as many countries, prohibit new cell towers on school property due to the health and safety issues.

RF Radiation Exposure

- Environmental RF radiation 24/7.
- Children absorb more RF from towers compared to adults.
- Peer-reviewed research links higher RF to health effects, from cancer to headaches and biochemical changes.
- Reports show RF levels are higher at schools with cell towers and increase over the years.

Liability And Risk

- Insurance companies classify RF as “high-risk” and compare it to asbestos.
- Most insurance policies exclude RF damages.
- Wireless companies inform stockholders of the risk, but not the school community.

Outdated FCC RF Limits

- Outdated 1996 RF limits remain without scientific review for 3 decades.
- FCC has not complied with a 2021 federal court mandate to review current science.
- Limits are only designed to protect for effects of short term exposure.
- No protections for effects of long-term exposure.
- No federal oversight for measuring RF levels.
- No premarket safety testing required.

Financial Impacts

- Reduced property values
- Loss of homeowner equity without compensation
- Reduction in local tax revenue
- Minimal lease revenue
- Revenue projections exclude administrative costs and staff time spent addressing parent concerns.

Hazardous Materials

- Diesel fuel tanks
- Gas lines
- Lead-acid and lithium-ion batteries
- Herbicides sprayed without oversight
- Tower compounds are classified as HazMat sites in several areas due to the potential for chemical leaks and flammable fuel.

Fall Zone

- Children and teachers are within tower collapse/structural failure fall zone.
- Injury risk from falling ice, debris, and tower equipment.

Fire Risk

- Equipment can catch fire due to electrical faults or lightning strikes.
- Battery backup systems and power supply cabinets at the base are fire hazards.
- Tower fires have closed sports fields and ignited ground vegetation.
- Electrical fires require power shutdown and specialized non-conductive agents before suppression can begin, delaying firefighting efforts.

Long-Term Leases

- 30-year leases with automatic renewals bind future school boards.
- School renovations often must be designed around existing towers.
- Parents are left out of the decision-making process.

EHSciences.org

Cell Tower Radiation Is A Form Of Environmental Pollution

Cell antennas that are installed near schools and homes increase environmental radiofrequency (RF) electromagnetic field (EMF)radiation.

- **Numerous studies** measure higher RF radiation in homes closer to cell towers and wireless sites.
- **A study** published in the Journal of Exposure Science & Environmental Epidemiology found that kindergarten children attending schools near cell towers had over three times higher RF radiation exposure than those attending schools further away from cell antennas.
- **A Swedish study** found that 4G and 5G base station antenna sites near schools significantly increased RF radiation exposure on the school property.

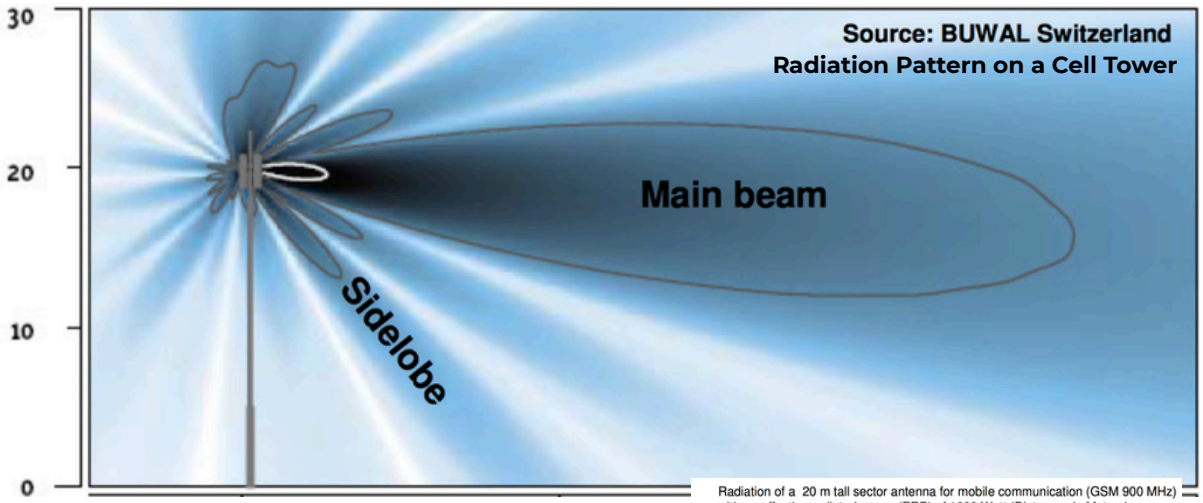
Non-ionizing EMFs can impact biology.

The ionizing versus non-ionizing radiation paradigm is outdated.

RF radiation is non-ionizing, meaning it lacks the energy to directly damage DNA. However, research finds these frequencies can cause biological effects via other pathways such as oxidative stress, even at exposure levels far below government limits.

All living things have evolved surrounded by natural EMFs, such as the Earth's magnetic field, sunlight and cosmic radiation.

Human-made EMFs, like cell tower radiation, are emitted from machines and are unlike natural EMFs in several ways. These artificial signals employ sophisticated modulation techniques involving multiple frequencies to transmit data. They are pulsed, polarized, and have highly variable and complex waveforms. These complex features are among the key parameters that many scientists believe enhance the biological impacts.



Radiation of a 20 m tall sector antenna for mobile communication (GSM 900 MHz) with an effective radiated power (ERP) of 1000 Watt (Distances in Meters)

*Click on bolded text for hyperlink to source.

Children Are Uniquely Vulnerable and Face Greater Risk

- A child's thinner skull, higher brain water content, and smaller head allow wireless RF radiation to penetrate deeper into brain regions critical for learning and memory.
- Their rapidly developing brains and nervous systems are more sensitive to environmental impacts.
- Studies have reported synergistic effects when combined with other chemicals and carcinogens, along with effects on the blood–brain barrier that permit greater toxin penetration into the brain.
- Safety limits are based on a 220-pound adult male.
- Children will experience a lifetime of exposure.

Study Highlight: Children Absorb Higher Cell Tower Radiation

While industry representatives often claim that radiation from cell towers is too "low" to cause adverse health effects, research shows that the cumulative exposure from nearby cell towers can exceed the RF exposure young children receive from cell phones.

A study published in *Environmental Research* by Lee and Choi (2023) found that continuous 24-hour exposure from cell towers produced more than a ten-fold higher cumulative daily energy absorption in the brain compared to a child's typical exposure from cell phone use. Further, children's brains had higher cell phone RF radiation absorption SAR rates compared to adults.

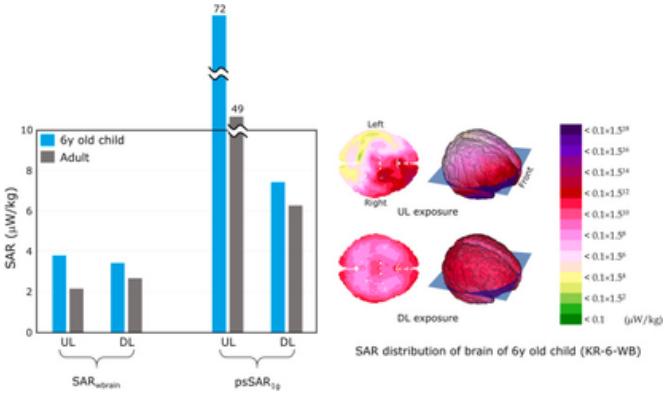


Figure 10 compares the specific absorption rate (SAR) in the brains of a child and an adult exposed to cell tower radiation (downlink DL) and cell phone radiation (uplink UL) and from real mobile networks in Seoul (2021), showing that the child's smaller head and thinner skull result in higher localized absorption of RF energy, indicating that younger brains take in more radiation under the same exposure conditions.

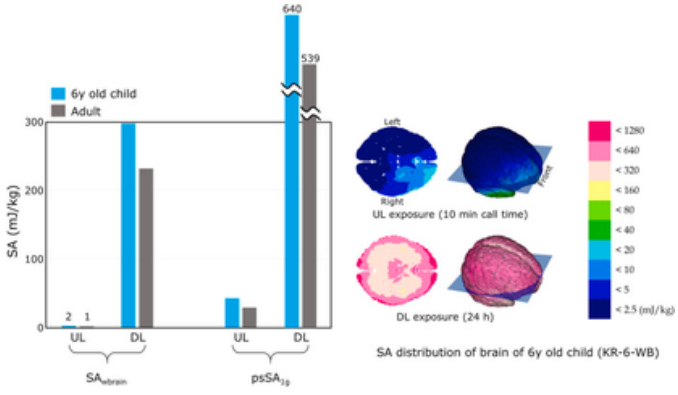


Figure 11 compares the daily whole-body specific absorption (SA) in a child and an adult exposed to real mobile (cellular) network signals in Seoul (2021), showing more than a tenfold difference in total exposure between uplink (UL) cell phone radiation and (DL) cell tower radiation.

Lee, AK. & Choi, HD. (2023) Dosimetric assessment in the brain for downlink EMF exposure in Korean mobile communication networks. *Environmental Research*

**Click on bolded text for hyperlink to source.*

Scientific Research on Cell Towers

The Majority of Cell Tower Studies Report Effects

A review on people living near cell towers published in ***Environmental Health* by Balmori (2022)** found the majority of studies reported impacts from exposure, primarily radiofrequency sickness, cancer, and altered biochemical markers.

Cancer

Multiple epidemiological studies on cell towers report increased cancer incidence and mortality among populations living close to cell towers. Elevated risks have been observed for a range of cancers, including breast, lung, leukemia, and childhood neoplasms. Studies have reported biochemical changes in the blood predictive of cancer risk.

Genetic and DNA Damage

Genetic effects have been observed in people living near towers, and studies have reported increased DNA strand breaks, chromosomal aberrations, and micronuclei.

Hormonal and Metabolic Effects

Long-term exposure has been linked to endocrine system impacts, including altered levels of thyroid, reproductive, and stress hormones. A study on students found those with higher RF exposures due to nearby cell antennas had elevated levels of blood sugar marker HbA1c and increased risk of type 2 diabetes mellitus.

Neuropsychiatric and Cognitive Symptoms

Residents living close to towers report more health issues, including headaches, sleep disturbances, fatigue, irritability, memory problems, and difficulty concentrating. Case reports describe “microwave syndrome” symptoms in individuals exposed to newer 5G infrastructure. Research has also linked cell tower RFR to poorer attention and impaired cognitive performance.

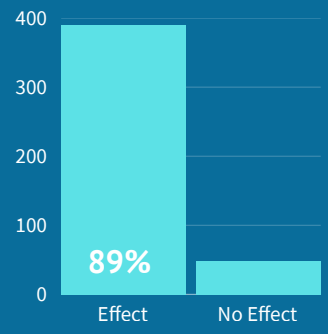
**Scientific research studies at this link*

The Majority of Wireless RF Radiation Studies Report Effects on Key Endpoints

Dr. Henry Lai, bioengineering professor emeritus at the University of Washington and editor-in-chief of *Electromagnetic Biology and Medicine*, finds the majority of research over the last few decades reports effects from RF exposure.

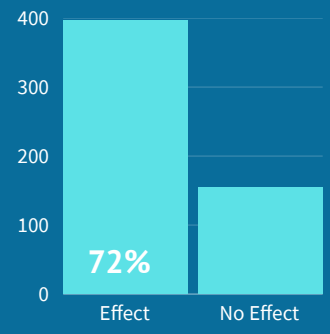
Oxidative

Effects in 390 of 438 studies since 1997



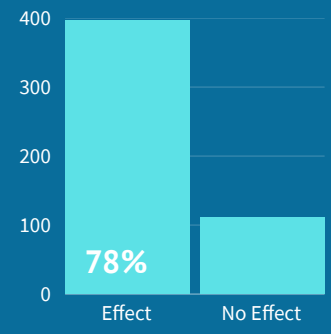
Genetic

Effects in 396 of 550 studies since 1990



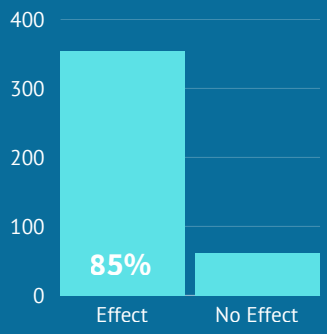
Neurological

Effects in 396 of 507 studies since 2007



Reproduction & Development

Effects in 354 of 415 studies since 1990



"This means that biological systems are very sensitive to RFR."

"It is clear that the current RFR exposure guidelines do not prevent the detrimental health effects of RFR."

-Dr. Henry Lai

Dr. Lai's research compilations, last partial update: June 8, 2026,
from the SAFEREMR.com website of Dr. Joel Moskowitz, University of California, Berkeley

The International Commission on Biological Effects of Electromagnetic Fields (ICBE-EMF)

"The past 25 years of extensive research on RFR demonstrates that the assumptions underlying the FCC's and ICNIRP's exposure limits are invalid and continue to present a public health harm. Adverse effects observed at exposures below the assumed threshold SAR include non-thermal induction of reactive oxygen species, DNA damage, cardiomyopathy, carcinogenicity, sperm damage, and neurological effects, including electromagnetic hypersensitivity. Also, multiple human studies have found statistically significant associations between RFR exposure and increased brain and thyroid cancer risk."

- ICBE-EMF in the paper "Scientific evidence invalidates health assumptions underlying the FCC and ICNIRP exposure limit determinations for radiofrequency radiation: implications for 5G" *Environmental Health* (2022)

Scientific Research on Cell Tower Radiation

Cancer in People Living Near Cell Towers

AUTHOR	JOURNAL	MAIN FINDING
Rodrigues et al. (2021)	International Journal of Environmental Research and Public Health	Higher cancer mortality, especially breast, cervix, lung, and esophageal cancers.
Li et al. (2012)	Science of the Total Environment	Increased risk of benign and malignant neoplasms in children with higher exposures.
Yakymenko (2011)	Experimental Oncology	Review of epidemiological and experimental data found increased cancer risk supported by studies reporting metabolic changes and the overproduction of reactive oxygen species.
Dode (2011)	Science of the Total Environment	Elevated cancer mortality rate within 500 meters of cell towers. The closer to the tower, the higher the mortality rate.
Eger & Neppe (2009)	Umwelt-Medizin-Gesellschaft	Increased cancer incidence within 400 meters after 5 years of exposure.
Eger et al. (2004)	Umwelt-Medizin-Gesellschaft	Higher cancer rates within 400 meters; earlier onset by ~8 years.
Wolf & Wolf (2004)	International Journal of Cancer Prevention	Increased cancer incidence near transmitter - 4.15 times more cases than in the entire population.
Michelozzi et al. (1998)	American Journal of Epidemiology	Increased childhood leukemia and increased leukemia mortality. Risk decreased with distance.

A rapidly expanding body of peer-reviewed research demonstrates that RF radiation from wireless infrastructure, including cellular towers and 5G small cell towers, can produce harmful effects at levels far below current FCC limits.

- International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF)
***Letter to U.S. House and Senate* (2026)**

Click on the author name to go directly to the published study

Scientific Research on Cell Tower Radiation

Systemic Biological Effects

AUTHOR	JOURNAL	MAIN FINDING
Laldinpuii et al. (2026)	Electromagnetic Biology and Medicine	Higher RF-EMF is associated with statistically significant alterations in several hematological parameters, including total leukocyte count (TLC), basophils, monocytes, and lymphocytes.
Gulati et al. (2024)	Ecotoxicology and Environmental Safety	Increased chromosomal aberrations, which are key indicators of genetic damage.
Zothansiama et al. (2017)	Electromagnetic Biology and Medicine	Antioxidant levels (glutathione, catalase, superoxide dismutase) decreased. Oxidative stress and DNA damage markers increased. Increased micronucleus frequency changes, which are predictive of cancer.
Meo (2015)	International Journal of Environmental Research and Public Health	Higher school exposure to cell tower RF radiation associated with elevated glycated hemoglobin (HbA1c) and increased risk of type 2 diabetes.
Gandhi et al. (2014)	Electromagnetic Biology and Medicine	Elevated DNA damage within 300 meters; proximity predicted damage.
Eskander et al. (2011)	Clinical Biochemistry	Long-term exposure linked to impacts to the endocrine system and decreased ACTH, cortisol, thyroid hormones, prolactin and testosterone.
Buchner (2011)	Umwelt-Medizin-Gesellschaft	The stress hormones adrenaline and noradrenaline increased significantly during the first six months of transmitter activation.

Many biological effects have been documented at very low intensities comparable to what the population experiences within 200 to 500 ft (~60–150 m) of a cell tower, including effects that occurred in studies of cell cultures and animals after exposures to low-intensity RFR. Effects reported include: genetic, growth, and reproductive; increases in permeability of the blood–brain barrier; behavioral; molecular, cellular, and metabolic; and increases in cancer risk.

- Levitt & Lai (2010)
Environmental Reviews

Click on the author's name to go directly to the published study.

Scientific Research on Cell Tower Radiation

Neurological, Cognitive & Behavioral Effects

AUTHOR	JOURNAL	MAIN FINDING
Salio et al. (2025)	Electromagnetic Biology and Medicine	Increased mood-energy, cognitive-sensory, inflammatory, and anatomical symptoms within 300 meters.
Hardell & Nilsson (2024)	Reviews on Environmental Health	Seven case reports of microwave syndrome symptoms near 5G antennas. Symptoms declined or disappeared when persons moved away.
Meo et al. (2018)	American Journal of Men's Health	Delayed fine and gross motor skills, spatial working memory, and attention in adolescents exposed in schools near antennas.
Calvente et al. (2016)	Bioelectromagnetics	Lower verbal scores and higher emotional issues in boys (9–11 years) in areas with higher RF radiation.
Abdel-Rassoul et al. (2007)	Neurotoxicology	Increased headaches, memory changes, sleep disturbances and reduced attention performance.
Hutter et al. (2006)	Occupational and Environmental Medicine	Headaches and cognitive changes.
Kolodynski & Kolodynska (1996)	Summarized in National Academies Press	Impairments in motor function, memory, attention, and reaction times in exposed children.

High exposure to RF-EMF produced by MPBSTs [cell towers and cellular network base station antennas] was associated with delayed fine and gross motor skills, spatial working memory, and attention in school adolescents compared to students who were exposed to low RF-EMF.

-Meo et al. (2018)
American Journal of Men's Health

Click on the author's name to go directly to the published study

Scientific Research on Cell Tower Radiation

General Health Symptoms

AUTHOR	JOURNAL	MAIN FINDING
López (2021)	Environmental Research	Headaches, dizziness, and decreased sleep.
Gomez-Perretta et al. (2013)	BMJ Open (formerly British Medical Journal)	Fatigue, irritability, poor concentration and sleep disturbance.
Singh et al. (2016)	Journal of International Society of Preventive and Community Dentistry	More sleep disturbances, headaches, concentration difficulties and reduced salivary secretion in people living closer to antennas.
Pachuau & Pachuaua (2016)	International Journal of Applied Physics and Mathematics	Higher health complaints correlated with higher exposures from nearby antennas.
Bortkiewicz et al. (2004)	Medycyna Pracy	Increased health complaints including circulatory system, sleep disturbances, irritability, concentration difficulties and depression correlated with proximity.
Santini et al. (2003)	Electromagnetic Biology and Medicine	Higher nausea, loss of appetite, sleep disturbance, decreased libido, and headaches within 200m of towers.
Navarro et al. (2003)	Electromagnetic Biology and Medicine	Symptom severity correlated with higher measured power density or RF radiation emitted from antennas.

More people who lived closer to base stations [cell tower antennas] reported health symptoms in all of the health categories investigated. Relatively fewer people who lived further away reported symptoms...The most significant contributor to the number of symptoms reported by residents was the strength of RF-EMF to which they were exposed in their home.

-Salio et al. (2025) *Electromagnetic Biology and Medicine*

Click on the author name to go directly to the published study

Scientific Research on Cell Tower Radiation

Over the past five decades, many studies have investigated the health effects of cell tower radiation on people living near transmitting antennas. Although findings are not always uniform, a substantial body of credible scientific research reports biological and health effects. Below is a selection of studies that report such effects.

Key Reviews

AUTHOR	JOURNAL	MAIN FINDING
Balmori (2022)	Environmental Research	Global review of research on people living near cell towers found the majority of studies (73.6%) reported health impacts, primarily radiofrequency sickness (73.9%), cancer (76.9%), and altered biochemical markers (75.0%).
Pearce (2024)	Environmental Research	Cellular phone base stations density & power output is increasing human RF radiation exposure. There is enough medical and scientific evidence to warrant long-term liability concerns. To protect cell phone tower firms, companies should minimize human exposure by locating facilities at least 500m away from the population.
Health Impact of 5G 2021 Report	European Parliament Study Service	Long used RF radiation frequencies (450–6000 MHz) for 5G and wireless networks are likely carcinogenic to humans and may harm male fertility and early developmental stages such as embryos and newborns.
Roda and Perry (2014)	Environmental Science and Policy	Reviewed the issue within a human rights framework and concluded that the accumulating science indicates safety is not assured and a precautionary approach is best suited to fulfill States' obligations under international human rights law.
Khurana (2011)	International Journal of Occupational and Environmental Health	Review found 8 of 10 epidemiological studies showed adverse symptoms within 500 meters of mobile phone base stations.
Levitt & Lai (2010)	Environmental Reviews	Review of studies found ~80% reported biological effects. Biological effects documented at very low intensities comparable to exposures within 200 to 500 ft of a cell tower include: genetic, growth, and reproductive impacts; increases in permeability of the blood–brain barrier; behavioral impacts; molecular, cellular, and metabolic impacts; and increases in cancer risk.

Click on the author name to go directly to the published study

Experts Recommend Safeguards for Cell Towers

Dr. J.M. Pearce in *Environmental Research*

"There is a large and growing body of evidence that human exposure to RF radiation from cellular phone base stations causes negative health effects including both i) neuropsychiatric complaints such as headache, concentration difficulties, memory changes, dizziness, tremors, depressive symptoms, fatigue and sleep disturbance; and ii) increased incidence of cancer and living in proximity to a cell-phone transmitter station."

The American Academy of Pediatrics

The American Academy of Pediatrics has repeatedly urged the U.S. government to update its 1996 wireless radiation limits as children are more vulnerable to RF radiation due to their thinner skulls, developing organ systems, and greater absorption rates.

"An Egyptian study confirmed concerns that living nearby mobile phone base stations increased the risk of developing: headaches, memory problems, dizziness, depression, sleep problems."

European Parliament Report

In July 2021, the European Parliament released a commissioned report titled **"Health Impact of 5G,"** which concluded that widely used RF radiation frequencies (450–6000 MHz) are likely carcinogenic to humans and may harm male fertility and early development stages such as embryos and newborns.

WHO International Agency for Research on Cancer

RF radiation **was classified** as a Group 2B "possible carcinogen" by the World Health Organization's International Agency for Research on Cancer (WHO/IARC) in 2011. Since then, the research linking RF to cancer has only increased. The large scale animal study published in *Environmental Research* by **Falcioni et al. (2018)** found elevated cancer rates in rats exposed to RF radiation at levels permitted for cell tower emissions.

Several independent scientists state that RF radiation would likely be reclassified as a probable or even **proven human carcinogen** if reassessed based on current science.

**Click on bolded text for hyperlink to source.*

Scientific and Medical Recommendations on Cell Towers and Wireless

Hundreds of scientific experts caution that cell tower RF radiation is not safe and that safeguards are needed to protect the public.

The International EMF Scientists Appeal

An appeal by 268 scientists from 45 nations who have published research on EMF bioeffects.

"Numerous recent scientific publications have shown that EMF affects living organisms at levels well below most international and national guidelines. Effects include increased cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans. Damage goes well beyond the human race, as there is growing evidence of harmful effects to both plant and animal life."

Santa Clara County Medical Association

Best Practices for Schools recommends restricting cell towers at schools because the "growing robust body of peer-reviewed research has shown that this radiofrequency radiation poses significant short and long-term health risks."

New Hampshire State Commission on 5G Health and Environment

The Commission conducted a year-long investigation into RF radiation and released **a final report** advising that children's exposure to RF should be minimized. The report also recommended that cell towers be located at least 1,640 feet away from residences and schools.

A Human Rights Issue

A study by human rights experts (Roda and Perry 2014) published in *Environmental Science and Policy* reviewed the growing science on cell tower radiation and framed the issue as a human rights concern for children, emphasizing the need to protect vulnerable populations from environmental pollution. They conclude that a precautionary approach is more aligned with states' obligations under international human rights law.

"Mobile phone infrastructure regulation in Europe: Scientific challenges and human rights protection."

LINK TO FULL LIST

**Click on bolded text for hyperlink to source.*

Researchers Recommend Keeping A Distance Between Cell Towers, Homes, and Schools

T-Mobile–Funded Review Recommended Limits 1,000× Lower Than FCC

In 2000, the Ecolog Institute Report, commissioned by T-Mobile, recommended a cell tower radiation human exposure limit 1,000 times lower than the FCC's current power density limit after a review of the research on cancer and impacts to the endocrine, neurological and reproductive systems.

> **The precautionary limit should be 0.01 W/m2. This should be rigorously adhered to by all base stations near sensitive places such as residential areas, schools, nurseries, playgrounds, hospitals and all other places at which humans are present for longer than 4 hours.**
>
> **- The Ecolog Institute Report**

Studies Recommend Distance From Cell Towers

Numerous studies have documented a higher prevalence and severity of health-related issues close to cell towers and wireless base station antennas. Thus, multiple peer-reviewed research articles recommend keeping cell towers at least 500 meters (approximately 1,500 feet) away from populated areas to reduce health risks, including:

- **Pearce (2024)** in *Environmental Research* advises base stations be placed no closer than 500 meters to minimize public RF exposure and decrease liability.
- **Rodrigues et al. (2021)** in the *International Journal of Environmental Research and Public Health* recommends deactivating towers within 500 meters of homes, workplaces, hospitals, & schools.
- **Yakymenko (2011)** in *Experimental Oncology* reviewed dozens of studies concluding that current human exposure limits need a re-evaluation and everyday exposures should be minimized.
- **Dode et al. (2011)** in *Science of the Total Environment* found increased tumor-related deaths within 500 meters of cellular base stations in Brazil, stating "More restrictive limits must be adopted urgently."
- **Levitt & Lai (2010)** in *Environmental Reviews* reviewed 100 studies on cell infrastructure and found about 80% showed biological effects, stating "As a general guideline, cell base stations should not be located less than 1,500 feet from the population, and at a height of about 150 feet."
- **Khurana et al. (2010)** in the *International Journal of Occupational Environmental Health* found that 8 out of 10 epidemiological studies reported higher rates of cancer or neurobehavioral symptoms within 500 meters of cell tower base stations.

**Click on report or study for hyperlink to source.*

Recommendations on Cell Towers at Schools

Los Angeles Unified (California) School District Office of Health and Safety

The District Office developed a "cautionary level" for RF radiation 10,000 times lower than FCC regulations because "it is believed that a more conservative level is necessary to protect children, who represent a potentially vulnerable and sensitive population."

Legal Handbook for Massachusetts' Board of Health (3rd Edition)

Includes a **chapter** on cell tower radiation, noting growing public concern. It warns that the widespread presence of towers should not be mistaken as evidence of safety. The **handbook** cites international studies showing significantly increased cancer risks near cell towers, including a German study reporting over three times higher cancer and breast cancer rates within 400 meters, an Israeli study showing a tenfold increase in cancer risk for women within 350 meters, and an Austrian study linking high RF exposure to a 23-fold higher breast cancer risk and a 121-fold higher brain tumor risk.

Catholic Diocese of Basel (Switzerland)

2020 Position; 2025 Switzerland Catholic Church News Article

The Diocese states that studies remain highly disputed but "special sensitivity is required when it comes to protecting against a technology that might be harmful to health. In such cases, the principle of precaution, guaranteed in the Swiss Federal Constitution and ethically justifiable, must be applied."

"As long as the questions regarding health impairments from mobile communication installations remain unresolved, parishes and church communities are strongly advised to exercise restraint and caution when it comes to installing such systems in church towers and church buildings."

"If significant opposition arises against a project, the project should be abandoned."

EPA Guidelines

The EPA's School Siting Guidelines identify electromagnetic field (EMF) exposure and the potential fall radius of cell towers as possible hazards. EPA guidelines **recommend schools "identify and evaluate cell towers within ~200 feet of prospective school locations."** The EPA has **long acknowledged** that the FCC limits for RF radiation—unchanged since 1996—do not account for health risks from long-term, low-level (non-thermal) exposure.

**Click on bolded text for hyperlink to source.*

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BRIEF

US Regulation of Cell Towers Lacks Oversight and Transparency

A Lack of Oversight Leaves Cell Tower Safety Unchecked

Wireless network deployment has skyrocketed, yet U.S. federal oversight remains minimal. The US operates on what is essentially the honor system for compliance. Many countries conduct regular audits of RF radiation emitted by cell towers and post the measurements, especially around schools. However, the U.S. lacks any type of robust oversight program and the public is unaware of the RF levels in their community.

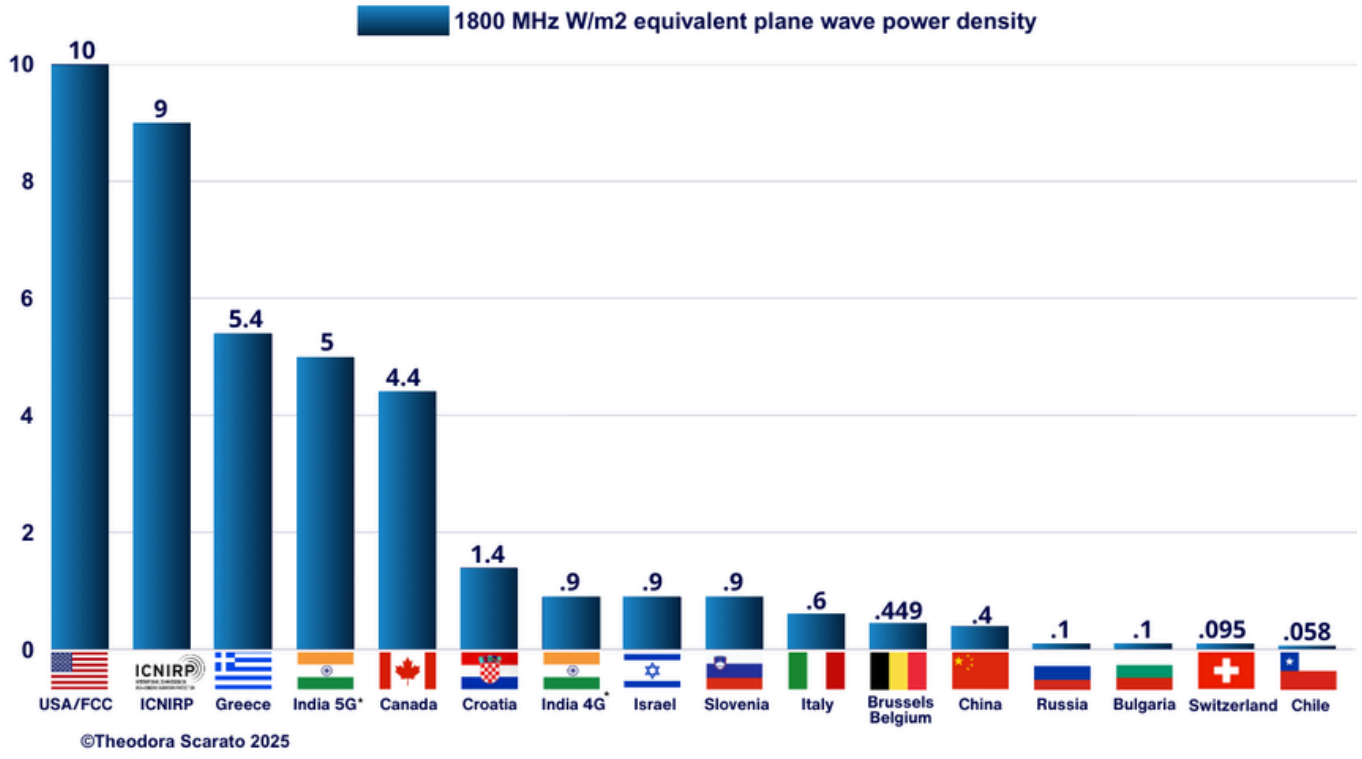
This absence of oversight has resulted in compliance issues. Further, cell tower RF radiation exposure limits remain outdated, rooted in decades-old assumptions that only heating from high intensity can cause harm.

12 Key Regulatory Deficiencies for Cell Tower Radiation

1. No oversight program to regularly audit sites.
2. No required yearly compliance tests.
3. No premarket safety testing for new technologies.
4. No post-market surveillance for health impacts.
5. No system for doctors to report health impacts.
6. No nationwide measuring or monitoring program.
7. No transparency on RF levels in neighborhoods.
8. No federal registry of all wireless sites.
9. No agency review of cell tower radiation studies.
10. No ongoing scientific research on bio-effects.
11. No update to cell tower RF radiation limits since 1996.
12. No RF limits for cell towers designed to protect for the effects of long-term exposure.

The United States allows higher levels of cell tower radiation compared to several other countries, including Italy, Switzerland, China, and Russia, which have adopted far stricter regulations for sensitive areas, including daycares, schools and homes.

CELL TOWER RF RADIATION LIMITS FOR SCHOOLS & HOMES



International Policies To Ban Cell Towers At Schools

Russia: Antennas for cell towers and base stations are no longer permitted near schools, with a national plan in place to relocate existing sites away from schools.

Türkiye: Cell antennas must be distanced from schools and playgrounds.

Greece: Towers are banned on school grounds. Stricter RF limits apply within a 300-meter radius around kindergartens, schools, hospitals, and elderly care facilities.

France: For towers or wireless facilities within 100 meters of schools, daycare centers, or healthcare establishments, levels must be minimized.

Bangladesh: Cell towers are prohibited on residential properties, schools, colleges, playing fields, densely populated areas, and heritage sites.

Israel: Minimum setback of 100 meters required for cell towers near schools and homes.

Chile: Cell antennas not allowed in “sensitive areas” (kindergartens, hospitals, and nursing homes).

Queensland, Australia: New cell towers prohibited on school property, with a 200-meter setback and emissions capped at no more than 1% of federal guidelines.

New Zealand: Cell towers prohibited on school property plus a 50 meter setback.

Toronto, Canada: A "Prudent Avoidance Policy" recommends keeping RF exposures at least 100 times below Health Canada’s guidelines.

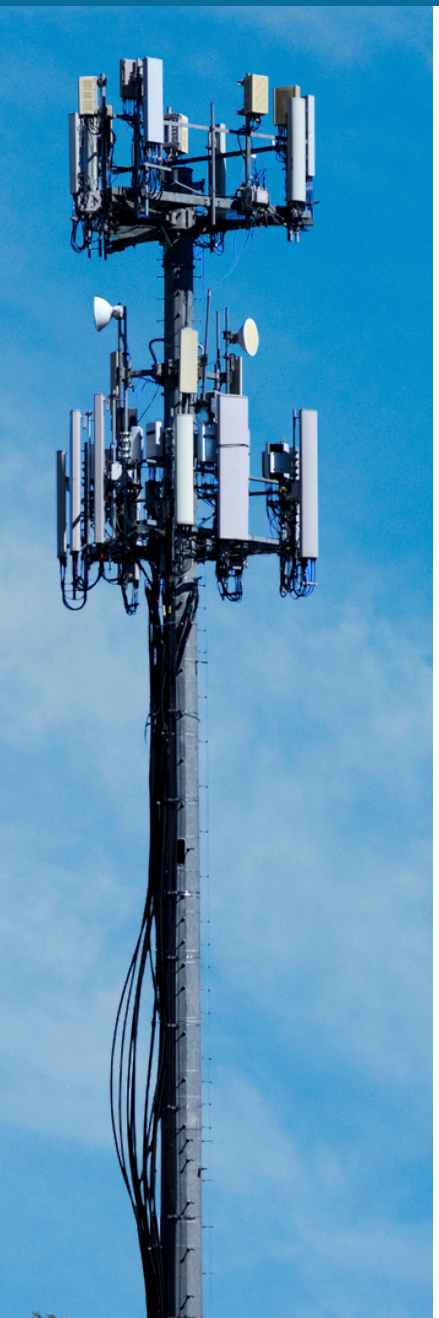
India: In Mumbai, Zilla Parishad, Rajasthan & Karnataka, cell towers are prohibited/removed near schools, colleges, orphanages, and old age homes

**Click on country or policy for hyperlink to source.*

U.S. Policies Restricting Cell Towers Near Schools

"In promoting the health and safety of students and staff and in compliance with its duty to provide an environment free from life hazards, new wireless telecommunication transmitter installations are prohibited on all school premises…the District shall not extend or renew such leases."

-Temecula Valley Unified Policy Prohibiting New Cell Towers



School Districts Have Banned New Cell Towers

The U.S. lacks federal regulations to ensure a distance between cell towers, homes, and schools. However, some local school districts and communities have banned new cell towers at schools.

- **Temecula Valley Unified (CA):** Passed a **resolution** and **policy** prohibiting new towers and lease renewals as well as ensuring regular RF radiation measurements of existing towers.
- **Los Angeles Unified (CA):** Passed three resolutions banning cell towers at schools, including one that set a **"cautionary level"** for radiofrequency radiation at 10,000 times lower than US federal limits for public exposure.
- **Palo Alto Unified (CA):** Passed a resolution opposed to new cell towers at schools and in favor of a 1,500-foot setback.
- **Portland Public Schools (OR):** Stopped considering new leases for cell towers.
- **Montgomery County (MD):** Stopped new cell towers at elementary schools.
- **West Linn-Wilsonville School District (OR)**: Prohibits towers on school property and opposes proposals for towers near schools.
- **Prince George's County (MD)**: Did not renew cell tower leasing agreement.
- **Greenbelt City Council (MD):** Issued opposition to cell towers at schools.
- **Loudoun County School Board (VA):** Prohibited new towers for 5 years.
- **The San Jose Catholic Diocese (CA):** halted new contracts for telecommunications companies with schools and churches.

**Click on bolded text for hyperlink to source.*

U.S. City, Town, and County Ordinances with Setbacks & Preferred Distances for Cell Towers

Many communities have adopted preferred distance and setback policies to restrict cell tower placement near homes and schools.

Note: To comply with FCC law, several ordinances include flexibility if strict application would effectively prohibit service.

- **Encinitas, CA**: 500 feet from schools, homes, and daycares
- **Williamson County, TN**: 1,500 ft from schools
- **Copake, NY:** 1,500 ft from homes/schools
- **Sallisaw, OK**: 1,500 ft from homes
- **Walnut Creek, CA**: 1,500 ft from schools
- **Calabasas, CA:** 1,000 ft from homes/schools
- **Scarsdale, NY:** 500 ft from homes/schools
- **San Diego County, CA:** 300 ft from schools
- **Bedford, NH:** 750 ft from residential property
- **Bar Harbor, ME:** 1,500 ft from schools
- **Shelburne, MA:** 3,000 ft from schools, 1,500 ft from homes
- **Davis, CA:** 500 ft from residential zone and schools
- **Westlake Village, CA:** 500 feet of homes
- **Randolph, MA:** 500 ft from homes
- **Petaluma, CA:** no "small cell" antennas within 500 ft of homes
- **Suisin City, CA:** no "small cell" antennas within 500 ft of homes
- **Contra Costa County, CA:** no new high-visibility facilities or towers within 300 ft of residential zones
- **Woodstock, NY:** 300 ft from any residential structure
- **Ithaca NY:** 250 ft from homes, schools, daycares
- **Arcata City, CA:** 1000 ft from homes

New York State Department of State, "Tips for Regulating Telecommunications Facilities"

"Tip: Be diligent in review about distance people will be from radiation. Example from Hempstead in which RF engineer tested a proposed facility that complied, based on claim that general public would be 80 feet from tower. But it was discovered towers were being mounted only a few feet from inhabitants of a top floor apartment...Towers far from residences result in least harmful exposure."

"Facilities towering over nearby residences can lower value of those nearby homes by 5 – 20%."

"If towers are too close, potential buyers are unable to secure FHA [Federal Housing Administration] federally guaranteed loans."

**Click on city for hyperlink to source.*

Parent Teacher Associations Opposed to Cell Towers

The Palo Alto PTA Council voted overwhelmingly in May 2019 to advocate for "risk reduction policies" regarding cell tower setbacks from schools and other electromagnetic field related issues consistent with the 1994 California PTA resolution on electromagnetic fields

-Palto Alto California School Board Resolution Opposing Cell Towers at Schools

New York State PTA

Adopted TWO Resolutions in 2014

"CELLULAR PHONE TOWERS – 2014 (R-'07, R-'00); Resolved that the New York State Congress of Parents and Teachers, Inc. support legislation that would encourage local communities, including parents and school officials, to regulate the placement of cell towers and cell tower antennas particularly in schools and areas where children congregate,

and be it further Resolved that the New York State PTA support continued research into the long-term effects of radio frequency and microwave frequencies on humans especially as they apply to children, and be it further Resolved that the New York State PTA seek to educate parents and school officials as to the current debate over the placement of cell towers and antennas."

California State PTA

First resolution adopted in 1994, reapproved in 2004

"Resolved: That the California State PTA educate aid inform its districts, councils, and units about the potential hazards of EMFs and encourage school districts and schools to develop risk reduction policies and continue to disseminate information on the subject as it becomes available."

"Lessons learned from studies on smoking, asbestos, second-hand smoke, and radon must not be ignored. We have an obligation to learn from the past and protect our children by reducing their exposure to what is clearly a serious and potential health hazard."

**Click on bolded text for hyperlink to source documents.*

Connecticut State PTA

Resolution passed in 2003 suporting legislation calling for a 1500 feet setback for cell towers away from a school or day care.

Conejo CA PTA

Op-ed in *Thousand Oaks Acorn Journal*

"The California PTA advocates on behalf of children and families. They advocate against electromagnetic field radiation in schools."

"Most people don't realize that the 1996 FCC state standards for safe levels of emission was actually based on a level set by the American national standards institute in 1982. Well this standard has not been changed in 30 years it has usurped all local authority."

"For this reason, Conejo Council PTA made up of 9000 parents and teachers has decided to take action. We're calling on our local leaders to put in place policies that would ensure parents are notified when cell towers are proposed near schools and then encourage a buffer zone around schools."

-Kim Huber, legislative chair of the Conejo Council PTA.

Letters by Local PTAs Nationwide

Click on the PTA to read the letters by PTAs opposing proposed cell towers.

- **Neelsville Middle School, CA PTA**
- **Hillsmere Elementary School, MD PTA**
- **Briarlake, GA, PTA**
- **Forest Grove Elementary, Pacific Grove Middle School, & Pacific Grove High School CA PTAs**