My submission is made as an individual and I have been injured by radiofrequency radiation (RF) including from mobile phones, Wi-Fi, wireless infrastructure, wearable devices and other various devices and equipment. As a result I now suffer from Electromagnetic Radiation Syndrome (EMR Syndrome), formerly known as Electrohypersensitivity (EHS).

Electromagnetic Radiation Syndrome

The proliferation of radiofrequency devices and infrastructure has presented a nightmare scenario to the small minority of people like me who suffer with electromagnetic radiation syndrome (EMR Syndrome). This is a condition in which adults and children develop intolerance to radiation from wireless technology devices and infrastructure such as mobile phones, Wi-Fi, wireless utility 'smart' meters and mobile masts and antennas. Symptoms vary from tingling in the hands and head pain when using a mobile phone, to severe and disabling illness. The most common symptoms are headaches, sleep disturbances, nausea, dizziness, cognitive and memory problems, a racing heart and palpitations, burning sensations, nosebleeds and noise or light sensitivities. Other symptoms are outlined in this study including also eventual tempo-spatial confusion:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7139347/

The prevalence of the condition is growing rapidly including amongst children and many people are not aware that their symptoms are caused by exposure to wireless devices. Given the exponential increase in the past decade of the use of wireless devices including Wi-Fi and smartphones and the increase in the levels of RF radiation in the environment from the wireless infrastructure, it is likely that the rates of people who suffer from the condition will continue to rise. Some well-known sufferers of the condition include Gro Harlem Brundtland, the former 3-time Prime Minister of Norway and director-general of the World Health Organisation, Matti Niemala, former Nokia technology chief and the wife of Frank Clegg, former head of Microsoft Canada and current head of Canadians for Safe Technology). The widespread installation of wireless infrastructure and use of wireless devices has left many people with no safe place to live and work and a future with worsening symptoms.

My first exposure to RF was approximately in 1997 when I bought a mobile phone and found that when I placed it next to my head to have a phone call, I immediately developed a headache. Since that time my RF exposures have dramatically increased as the deployment of wireless infrastructure has accelerated and more and more people have bought mobile phones and internet-enabled wireless devices for themselves and for children and as new technologies have become more advanced and moved from 1G and 2G up to 5G. The new 5G antennas are used in conjunction with the existing 2G, 3G and 4G technology, thereby compounding, not replacing the already harmful effects. Now I am surrounded by Wi-Fi from my neighbours and everywhere I go. Antennas are often placed on the tops of lampposts and buildings near homes, schools, hospitals and workplaces. It has become inescapable and my headaches have become worse and more frequent due to the constant exposures in my daily life. RF has severely impacted my ability to work and engage in social or leisure activities. A worse headache follows every trip I make outside my home regardless of whether it's to get groceries or make a trip to the doctor or dentist, so my everyday life has become very difficult.

I have had to move to another room in my house to reduce the Wi-Fi exposure from my neighbours while I'm asleep and have put up special shielding fabric over the window in this room which has helped to reduce the exposure but I need to take more mitigation

measures. Unfortunately I am finding it difficult to get a shielding expert to do a survey and advise me as there are none available in my area.

Copper Phase Out

The phasing out of traditional copper-wire landlines is also causing serious problems for sufferers of EMR Syndrome. We rarely use mobile phones due to their adverse side effects and rely on landlines, which are gradually being replaced with a fibre-optic network which relies on electricity and internet using the Voice over Internet Protocol (VoIP) technology or other broadband-based digital phones. This is putting sufferers of EMR Syndrome at a serious disadvantage and causing isolation as we don't want to have a broadband connection that potentially causes more problems and which then has to be turned on all the time to make and receive calls. A number of people have reported increased symptoms where high speed fibre-optic broadband is installed: https://www.emfanalysis.com/fiber-optics-increasing-electrical-sensitivity/ Also, most people with EMR Syndrome would not possess, use, or want to use a mobile/smart phone as an alternative. It's very important therefore that traditional landlines are not phased out.

Adverse Health Effects

The proliferation of wireless technology has developed without regard to the thousands of independent peer-reviewed scientific studies on the dangers of RF. Other warnings have come from organisations such as Environmental Health Trust (ehtrust.org), PHIRE medical UK, the independent scientists at emfcall.org and bioinitiative.org (whose research spans several decades) along with over 40 scientist/doctor appeals since 1998 including the Freiburg Appeal 2002 and Bamberg Appeal 2004.

Public exposure to RF radiation across the country has dramatically increased in recent years. This is despite thousands of independent studies which demonstrate the adverse effects on health, all wildlife and the environment even at very low levels. Here are some examples from studies on the adverse effects of electromagnetic/RF radiation:

The Bioinitiative Working Group, an international collaboration of prestigious scientists and public health experts from across the world, reviewed thousands of peer-reviewed scientific papers. The 2007 report includes 2,000 studies and states that "What is clear is that the existing public safety standards limiting these radiation levels in nearly every country of the world look to be thousands of times too lenient. Changes are needed." The 2012 report contains an additional 1,800 studies and the collective studies identified key scientific biological effects from exposure to RF/EMF/Wi-Fi even at low levels with peer-reviewed evidence from independent scientific research:

- Children are more vulnerable
- Fetal and Neonatal Effects
- Effects on Autism (Autism Spectrum Conditions)
- Electrohypersensitivity
- Effects from Cell Tower-Level RFR Exposures
- Effects on the Blood-brain Barrier
- Damage to Sperm and Reproduction
- Effects on Brain Tumours
- Effects on Genes (Genetoxicity)
- Effects on the Nervous System (Neurotoxicity)
- Effects on Cancer (Childhood Leukemia, Adult Cancers)
- Melatonin, Breast Cancer and Alzheimer's Disease
- Stress, Stress Proteins and DNA as a Fractal Antenna

- Effects of Weak-Field Interactions on Non-Linear Biological Oscillators and Synchronized Neural Activity.

https://bioinitiative.org/wp-content/uploads/pdfs/sec01_2007_summary_for_public.pdf

More at: BioInitiative 2012 – Summary for the Public (2014 Supplement):

https://bioinitiative.org/wp-content/uploads/pdfs/sec01_2012_summary_for_public.pdf

The National Toxicology Programme released the results of the longest (10 years) and most expensive study to date on mobile phones and cancer in November 2018, which found "clear evidence" that male rats exposed to high levels of radio frequency radiation (RFR) like that used in 2G and 3G mobile phones developed cancerous heart tumours. Higher incidences of brain and adrenal tumours were also seen. https://www.nih.gov/news-events/news-releases/high-exposure-radio-frequency-radiation-associated-cancer-male-rats

Specific studies show higher rates of illnesses and cancers in those living near mobile masts e.g a study by Professor Lennart Hardell and Mona Nilsson published by the Swedish Radiation Protection Foundation in 2022, which adds to the wealth of science indicating the serious potential health effects of 5G. It shows the health consequences for a man and a woman where a 5G base station was placed directly above their apartment, only 5 metres above their bedroom. The study recorded a massive increase in radiation exposure levels resulting in immediate microwave sickness symptoms for these residents living below the antenna. Symptoms included fatigue, difficulty sleeping, nosebleeds, tinnitus, dizziness, skin problems, concentration problems, irritability, impaired short-term memory, confusion, depression, and heart palpitations. It demonstrates that 5G causes harm specifically. However existing scientific evidence has long indicated 5G could cause harm. According to the study, in addition to showing that 5G causes microwave syndrome/ electromagnetic radiation syndrome almost immediately, it also shows that it leads to a massive increase in radiation in our environment. The findings of the study with regard to the health implications make for urgent reading and can be accessed here:

https://www.anncaserep.com/open-access/development-of-the-microwave-syndrome-in-two-men-shortly-after-9589.pdf?fbclid=IwY2xjawVAp4NleHRuA2FlbQIxMABwZG9mAWJyaWQRMGFlak5ab3c2SjZWOEd4bTVzcnRjBmFwcF9pZBAyMjIwMzkxNzg4MjAwODkyAAEe2BX_m48OYvCNZhe9XtlUGid0lMeeYCh

A sample of other studies regarding the harmful effects of living near to mobile base stations is attached.

Children and Wi-Fi

Most worrying with regard to the health issue is the fact that children, adolescents and especially the unborn are particularly vulnerable to exposure from RF radiation as they absorb much more radiation than adults, are still developing and have a longer time ahead for latent effects to manifest. The Wi-Fi systems used in schools are considerably stronger than that used at home, as more routers are needed, producing much higher signal strength to cover a larger area. Each separate tablet or device will also be

emitting radiation. It is vital therefore that the government works to reduce the exposure in schools and early childhood care and education settings like has been done for example in France, Cyprus, Israel and Russia.
https://ehtrust.org/health-effects-wireless-in-schools/
http://www.assemblee-nationale.fr/14/ta/ta0468.asp
https://ehtrust.org/cyprus-issues-decree-banning-wireless-kindergarten-elementary-school-classrooms/
https://ehtrust.org/restrict-screens-no-cell-phones-and-minimize-wireless-radiation-for-education-during-covid-19-quarantine-russia-releases-recommendations-for-childrens-protection/

Schools should replace Wi-Fi technology with safer wired ethernet connections and take all reasonable measures to reduce exposure to radio frequencies from mobile phones, including regulating the use of mobile phones by schoolchildren on school premises and put in place information and awareness-raising campaigns on the risks of potentially harmful long-term biological effects on health. As Dr. Sarah Starkey has said on this issue, "Harming children is wrong, no matter how economically inconvenient or how difficult it is to make changes".

This is a paper by Professor Tom Butler on the "Clear Evidence of the Risks to Children from Non-Ionizing Radio Frequency Radiation: The Case of Digital Technologies in the Home, Classroom and Society":
https://www.fcc.gov/ecfs/document/122473789735/22

I have attached documents with links to further studies with regard to the effects of RF on children.

World Health Organisation

In May 2011 The World Health Organisation (WHO) and International Agency for Research on Cancer (IARC) classified all Electromagnetic Fields/Radio Frequency (EMF/RF/Wi-Fi) used to power modern technology and emitted by masts/antennas and technological devices as "possibly carcinogenic to humans (Group 2B), based on an increased risk for glioma, a malignant type of brain cancer".
http://www.iarc.fr/wp-content/uploads/2018/07/pr208_E.pdf

The body of evidence is growing to suggest that it should be re-classified as a Class 1 carcinogen, which is the strongest classification. In March 2019, the Advisory Group for the IARC recommended that the IARC review the research on electromagnetic radiation to determine if it is a carcinogenic hazard (i.e. Group 2A or Group 1). The advisory group recommended that this review be conducted by 2024 as a "high priority" – a clear signal of the need to reassess the risk to public health.

Given the growing exposure to RF in our society including vulnerable groups, especially young people and children, waiting any longer to prevent well-known risks will lead to very high costs to our health and economy as has been the case with asbestos, leaded gas and tobacco.

FCC Guidelines and lack of oversight

In the meantime, the exposure limits which were established by the FCC in 1996 have not been updated, even after a review in 2019 and despite mobile phone technology having dramatically changed in this period. In 1996 the relevant mobile network technologies were 1G and 2G and smartphones as we know them today were a long way

from being commercially available – the first Apple iPhone only became available in 2007. The reliance on the 'safety' guidelines of the FCC is at the heart of the problem of public safety. In addition to being completely out of date, they have been scientifically proven to be hopelessly too high, they are not protective, do not adhere to the Precautionary Principle and they benefit the telecommunications industry only. They focus on technical issues and on technology that is vastly different from that of today and were set for short-term exposure (unreflective of today's constant exposure) on an adult male only. Children are not covered by these guidelines**.** They are based on the obsolete hypothesis that heating is the only harmful effect of electromagnetic fields, thereby excluding a large body of published science demonstrating the detrimental effects caused by non-thermal radiation. Hundreds of scientists have proven that many different kinds of acute and chronic illnesses are caused without heating ("non-thermal effect") from radiation levels far below these 'guidelines' for both extremely low frequency electromagnetic fields and for radio frequency radiation, neither of which is ionizing. This is explained in this study which concludes among other things, that there is sufficient scientific evidence of cellular damage caused by non-ionizing radiation well below thermal guidelines and free radicals can and do cause cancer and non-ionizing radiation can and does increase free radicals :
https://www.sciencedirect.com/science/article/pii/S0269749116309526

Prof. D. Belpomme (MD, MCS, Professor of Medical Oncology) and his colleagues elaborate further in this review article "Thermal and non-thermal health effects of low intensity non-ionizing radiation - An international perspective":
https://www.saferemr.com/2018/07/international-perspective-on-health.html
https://pubmed.ncbi.nlm.nih.gov/30025338

It is clear that the FCC has not kept up with establishing appropriate protective levels in line with the technologies in current usage. In 2021, a federal court ruled the FCC had failed to justify its 1996 exposure limits and ordered it to explain itself. However no action has ever been taken on that order and there has been no pre-market safety testing or post-market monitoring of the acute, chronic and cumulative health effects of wireless technologies.

This lack of action has left the USA among the countries which have the most lenient limits worldwide for RF power density limits and without additional protections for sensitive areas, such as schools, day care centres and homes. In light of the numerous scientific studies indicating adverse health effects from even very low levels of RF exposure, over 40% of the World's populations have exposure guidelines substantially more rigorous than those of the FCC.
https://bemri.org/publications/icnirp/458-rf-microwave-radiation-risk-awareness/file.html

As you can see in figure 2 in Theodora Scarato's review article below from last year, there are several other countries which apply much more stringent limits including for example, China, Switzerland and Russia.
https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1677583/full

According to Scarato "Russian research on electromagnetism, dating to the 1840s, has long recognized non-thermal impacts and its scientists have consistently recommended limits to address their observed biological impacts to the central nervous system. China also has active ongoing bioeffect research, and its scientists cited studies showing immune, behavioral, neurological, and reproductive impacts at levels below the 4 W/kg SAR heat threshold as the rationale for its tighter limits".

The Department of Health and Human Services needs to have more oversight of the FCC regarding public exposure to non-ionizing radiation.

The International Commission for Electromagnetic Safety have said: "The non-ionizing radiation protection standards recommended by the international standards organisations, and supported by the World Health Organisation, are inadequate. Existing guidelines are based on results from acute exposure studies and only thermal effects are considered. A world wide application of the Precautionary Principle is required. In addition, new standards should be developed to take various physiological conditions into consideration, e.g., pregnancy, newborns, children, and elderly people" (ICEMS, 2008).
http://www.icems.eu/resolution.htm

Prof. Emeritus Martin Pall, Eight Repeatedly Documented Findings Each Show that EMF Safety Guidelines Do Not Predict Biological Effects and Are Therefore Fraudulent
https://ehtrust.org/wp-content/uploads/SafetyGuidelineFraud2.pdf

Prof. D. Belpomme (MD, MCS, Professor of Medical Oncology, and his colleagues stated in July 2018: "The specific absorption rate (SAR)-based ICNIRP safety limits were established on the basis of simulation of EMF energy absorption using standardized adult male phantoms, and designed to protect people only from the thermal effects of EMFs. These assumptions are not valid for two reasons. Not only do they fail to consider the specific morphological and bioclinical vulnerabilities of children, but also they ignore the effects known to occur at non-thermal intensities…."
https://www.saferemr.com/2018/07/international-perspective-on-health.html
https://pubmed.ncbi.nlm.nih.gov/30025338/

Gandhi OP, Morgan LL, de Salles AA, Han YY, Herberman RB, Davis DL. Exposure limits: the underestimation of absorbed cell phone radiation, especially in children. Electromagn Biol Med. 2012;31(1):34-51. oi:10.3109/15368378.2011.622827
https://pubmed.ncbi.nlm.nih.gov/21999884/

Starkey, S. J. (2016). Inaccurate official assessment of radiofrequency safety by the Advisory Group on Non-ionising Radiation. Reviews on environmental health, 31(4), 493-503.
https://www.ncbi.nlm.nih.gov/pubmed/27902455

Insurance

Harm from non-ionizing radiation is recognized by the insurance industry and is considered an environmental pollutant. According to CFC Underwriting Ltd., the UK agent for Lloyd's of London, it is standard practice for insurance coverage "to exclude cover for illnesses caused by continuous long-term non-ionising radiation exposure". This is confirmed in this document – Insurance for Architects & Engineers – Proinsurance TM A&E Policy Document" which was produced by CFC Underwriting Limited for Lloyd's of London:
https://www.jrseco.com/lloyds-insurance-company-does-not-cover-health-damage-caused-by-electromagnetic-radiation/

The insurance authority Swiss Re Group's SONAR 2019 report on emerging risks identified the rollout of 5G mobile networks as one of the top emerging and high-impact risks for the re/insurance industry. It discusses the expansion of 5G wireless connectivity and states that concerns about potential negative health effects are likely to

increase. It identifies possible future liability claims as one consequence of those concerns
https://www.swissre.com/institute/research/sonar/sonar2019/SONAR2019-off-the-leash.html

This raises the questions – if RF radiation from the antennas on telecommunications masts are as safe as the telecommunications companies and our official organisations say, why is it uninsurable and why are they not being made liable? If insurance companies won't take the risk, then our citizens, especially our children should not be subjected to this risk either and our governments and taxpayers should not be exposed to the risk either. It appears that this lack of insurance cover leaves future governments exposed to being liable for all ill health effects from RF radiation

Conclusion

I am not against the use of technology but it is vital for all of us that it is safe especially for EMR Syndrome sufferers. Previously we had the option to avoid wireless and use wired and to turn off Wi-Fi while sleeping etc. but now we have no option whatsoever to turn it off. The policy of successive governments has facilitated RF radiation to become inescapable in its provision for antennas to be deployed everywhere on masts/cell towers, electricity poles, near homes, schools, hospitals and workplaces and is exposing us all to wireless non-ionizing electromagnetic radiation against our consent.

Focus should be on wired internet to the home and business, which is safer, faster, more reliable and more cyber-secure. We must desist from putting wireless infrastructure in areas of high population, reduce children's use of mobile phones and take account of the needs of EMR Syndrome sufferers.

The compelling scientific evidence proves at the very least that there is a serious doubt about the safety of wireless radiation and we have no basis on which we can presume that RF radiation is safe. This serious doubt about safety was further confirmed when wireless industry representatives admitted at a US Senate Hearing in 2019 that they had carried out NO health and safety studies on 5G. You can watch this short video where they make this admission:
https://www.youtube.com/watch?v=hsil3VQE5K4

Continuing down this path with its consequent adverse effects leaves future governments at risk of an extensive backlash from the public who feel betrayed by governments who ignored the mounting evidence of the risks, massive lawsuits by individuals or groups who fall ill from exposure to RF radiation and a health service unable to cope. I therefore earnestly request that the Department of Health and Human Services takes immediate measures to:

a) invoke the precautionary principle and reduce avoidable exposure while independent research can continue to be fully carried out to fully investigate this technology for safety so as to protect our citizens, with particular attention to children, the unborn and other vulnerable groups;
b) provide safe spaces for sufferers of Electromagnetic Radiation Syndrome;
c) inform the public, including teachers and doctors, about the health risks from radiofrequency radiation and how they can avoid wireless communication;
d) introduce a ban on mobile phone masts/antennas near schools, playgrounds, sports pitches, health centres, schools, hospitals, homes and workplaces especially where there are already existing structures in place;

e) prioritize and incentivize the use of safer wired fibre broadband instead of wireless telecommunications generally and take extra care with ensuring safety in schools and early childhood care and education settings so that there is no exposure to Wi-Fi, including by strictly regulating the use of mobile phones by schoolchildren on school premises and by installing hardwired networks only;
f) immediately appoint – without industry influence – independent EMF and health scientists with no conflicts of interest, for the purpose of establishing new safety standards for RF radiation for the USA, that are not based only on power levels, that consider cumulative exposure, and that protect against *all* health and environmental effects, not just thermal effects and not just effects on humans;
g) introduce legislation which requires warning labels to be put on all mobile phones sold in the USA displaying details of its non-ionizing radiation level and stating that mobile phones emit electromagnetic radiation, and that users should keep the device away from the head and body;
h) require pre-market safety testing of wireless infrastructure and devices and post-market monitoring of RFR exposures to ensure compliance with guidelines;
i) transfer responsibility for public exposure to non-ionising radiation to the Department of Health and Human Services;

Thank you for your time in reading my submission, which was sent using a wired connection.