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You can read about our inquiry here: <https://committees.parliament.uk/work/89/broadband-and-the-road-to-5g/publications/>

Full Fact have published information about 5G conspiracies: <https://fullfact.org/online/5g-and-coronavirus-conspiracy-theories-came/>

You can find out how to spot false information online here: <https://sharechecklist.gov.uk/>

## Written evidence submitted by Dr Zac Cox BDS LCPH

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### Introduction

My name is **Dr Zac Cox**. I am a dentist and a homeopathic doctor. I've been researching and giving public lectures about the dangers of wireless technology since 2006.

**Mobile phone radiation** is considered dangerous to health by the vast majority of scientists and doctors in this field. Wireless devices such as Wi-Fi, mobile phones, cordless phones, laptops, Fitbits', cell phone towers, smart meters etc., transmit / emit **microwaves or Pulsed Radiofrequencies (RF) radiation**.

However, the **World Health Organisation (WHO)** consider **RF** safe. They take their advice largely from **ICNIRP**, the **International Commission on Non-ionizing Radiation Protection**.

The **ICNIRP** says that **RF** is only dangerous if heating occurs over a six minute exposure period. In other words, if your phone doesn't heat up your head in under six minutes then it's safe. **However, the vast majority of scientists know that this is clearly false – harm occurs at far, far lower levels of exposure.**

### **Evidence**

The **ICNIRP** is a German NGO, somewhat surprisingly its members have links to the cell phone industry. *Investigate Europe* published an article on the 14<sup>th</sup> March 2019 showing that many members of ICNIRP receive funds from the cell phone industry: <https://www.investigate-europe.eu/publications/how-much-is-safe/>

**ICNIRP** was formed and headed up by **Michael Repacholi**, who, interestingly enough published a paper in 1997, whilst working in Adelaide, showing that **RF** could induce tumours in mice!

(Repacholi, M.H *et al.*, 1997. *Lymphomas in Eμ-Pim1 Transgenic Mice Exposed to Pulsed 900 MHz Electromagnetic Fields*).

Available from: <https://www.jstor.org/stable/pdf/3579630.pdf?seq=1>

Yet now the **ICNIRP** say that **RF** is safe! **ICNIRP is considered to be completely untrustworthy by the vast majority of doctors and scientists.**

**RF** was classified in 2011, as being a **class 2B carcinogen** (possibly causes cancer) by the WHO. The latest studies now show that **RF** causes cancer, according to Lennart Hardell Swedish Professor of oncology and **that RF should be classified as a class 1 carcinogen**

(Hardell, L & Carlberg, M, 2017. *Evaluation of Mobile Phone and Cordless Phone Use and Glioma Risk Using the Bradford Hill Viewpoints from 1965 on Association or Causation*). Available from:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5376454/>

**RF causes DNA damage** according to a \$30 million study by the **US National Toxicology Programs (NTP)** which was published in October 2019.

*(Evaluation of the Genotoxicity of Cell Phone Radiofrequency Radiation in Male and Female Rats and Mice Following Subchronic Exposure)*. Available from:

<https://onlinelibrary.wiley.com/doi/epdf/10.1002/em.22343>

The **NTP** study (the largest of its kind) also showed '**clear evidence**' that **RF caused cancer**. Their Technical Reports were published in November 2018.

*(Cell Phone Radio Frequency Radiation)*. Available from:

<https://ntp.niehs.nih.gov/whatwestudy/topics/cellphones/index.html>

Another study by the **Ramazzini Institute** in Italy in 2018, funded in part by the U.S. government, found that lab animals exposed to wireless radiation from distant cell towers had a greater chance of developing **heart tumours** than those which were not exposed. This study was the first large-scale study to show clear evidence of **cancer risk** from far-field exposures.

*(Report of final results regarding brain and heart tumors in Sprague-Dawley rats exposed from prenatal life until natural death to mobile phone radiofrequency field representative of a 1.8 GHz GSM base station environmental emission)*. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29530389>

**More than 10,000 peer reviewed scientific studies demonstrate harm to human health from RF.**

**Effects include:**

- Altered heart rhythm
- Altered metabolism
- Altered stem cell cell development
- Cancers
- Cardiovascular disease
- Cognitive impairment
- DNA damage
- Impacts on general well-being

- Increased free radicals - which is known to drive inflammation and which drives most diseases including Alzheimer's, cancer, diabetes, heart disease etc.^
- Learning and memory deficits
- Impaired sperm function and quality – infertility!
- Miscarriage
- Neurological damage
- Obesity and diabetes
- Autism
- ADHD
- Asthma

^ Reuter, S et al., 2010. *Oxidative stress, inflammation, and cancer: how are they linked?* Available from: <https://www.ncbi.nlm.nih.gov/pubmed/20840865>

**Damage unfortunately extends to all of nature too - there is abundant evidence of harm to plants, trees, bees, insects and laboratory animals.**

Please see [www.5gspaceappeal.org](http://www.5gspaceappeal.org) for more details.

**5G combines millimetre waves (MMW) and RF** i.e. the existing 4G, 3G, 2G systems will still run alongside the EXTRA RF of millimetre waves. **This means that ALL of the current RF research is valid for 5G too!**

Obviously, scientists are expecting that the combination of **MMW** and **RF** to be vastly more dangerous to health. **Professor Emeritus Martin Pall**, who authored, *'Proven Effects of Microwave Radiation'* said: **"5G... has got to be about the stupidest idea anyone has had in the history of the world."**

Pall demonstrated that human cells are **adversely affected by RF** triggering voltage gated calcium channels. The current **RF** exposure level is **7.2 million times higher** than that needed to trigger these voltage gates. This means that these gates are malfunctioning; cells are consequently flooded with millions of calcium ions, causing the cell to eventually die. When enough cells die, a cancer forms or a disease is triggered.

The commonly held view is that the main impacts of **MMW** will be focused on skin and eyes, causing diseases such as skin cancer, cataracts, and other skin conditions. However, there is evidence that biological responses to **MMW** irradiation can be initiated within the skin and the subsequent systemic signalling in the skin can result in harm to the nervous system, heart and immune system.

(Russell, C.L, 2018. *5 G wireless telecommunications expansion: Public health and environmental implications*). Available from:

<https://www.sciencedirect.com/science/article/abs/pii/S0013935118300161>

**Kostoff et al.** reported that **5G will affect skin and eyes**, causing skin irritation and cancer, cataracts and also other systemic health problems such as heart disease, kidney damage and those organs that function mostly with fluids. Of note, lungs are one such organ. Long-term exposure will result in severe health problems for a growing percentage of the population. Their evidence is drawn from many studies on microwave radiation on the frequency used for 5G.

(Kostoff, R.N. et al, 2010. *Adverse health effects of 5G mobile networking technology under real-life conditions*). Available from:

<https://doi.org/10.1016/j.toxlet.2020.01.020>

Currently there have been **NO SAFETY** testing on 5G – NONE! In fact, in an American Senate hearing, the industry openly admitted that no testing on 5G had been conducted or was planned to be conducted on health effects. This is an appalling situation! **Any sane person would refuse the rollout of 5G without safety testing!** Please see [www.emfsafetynetwork.org](http://www.emfsafetynetwork.org) for more details.

Switzerland has called for a moratorium to halt the roll out of 5G because of concerns about **lack of safety testing**. It just makes common sense to stop the 5G network now before it is too late and people suffer as a consequence. **I'm not calling for more research as there is already more than enough good science which demonstrates that RF is harmful to health.** Article in the Financial Times online, "*Switzerland halts rollout of 5G over health concerns*". Available from:

<https://www.ft.com/content/848c5b44-4d7a-11ea-95a0-43d18ec715f5>

You don't have to look too far to see that there is a groundswell of public support to ban 5G. Even in mainstream scientific journals such as '*Scientific American*' scientists have called into question the safety of 5G.

(Moskowitz, J.M., 2019. *We Have No Reason to Believe 5G Is Safe*. Available from: <https://blogs.scientificamerican.com/observations/we-have-no-reason-to-believe-5g-is-safe/>

**Prof Henry Lai** has collated the published studies on **RF** and oxidative stress (Please see <https://bioinitiative.org/research-summaries/> for more details). Of these 220 or so papers **90%** (NINETY percent) show harm. As a holistic dentist I know only too well the damage caused by oxidative stress – it drives inflammation and in turn, many all too common diseases including cancer, Alzheimer's and diabetes etc.

(BioInitiative Report Research Summaries Updates, 2017 and 2019. *Percent Comparison Showing Effect vs No Effect in Comet Assay and Free Radical (Oxidative Effects) Studies (RFR and Static Field/ELF-EMF)*. Available from: <https://bioinitiative.org/wp-content/uploads/2019/05/Lai-Geno-Percent-Graphic-2019.pdf>

## **Conclusions**

Many scientific and medical appeals to the government and the EU have fallen on deaf ears with the all too familiar 'no consistent evidence of harm' line being trotted out by Public health authorities.

In other words, the 'health authorities' expect 100% of studies to show harm before they will accept there is a problem. The trouble with this is that **industry pay for and sponsors many research studies** (exactly like the tobacco industry did) and this leads to some conflicting research – of course it does!

The majority of the scientific literature CLEARLY shows that RF is harmful to human health; ICNIRP is not fit for purpose as they are merely representing industry interests and this is putting people's lives at risk.

In conclusion, **Henry Lai's** collated studies show **90%** of research on oxidative stress and **RF demonstrates harm. 90% is compelling** and is reason enough on its own to halt 5G. **Indeed, it is reason enough to be looking for a safe alternative to 2G, 3G, 4G and 5G!**