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Why are we where we are?

Definition of Conflicts of Interest

As defined by the International Committee of Medical Journal Editors:

"A conflict of interest exists when professional judgment concerning a **primary interest** (such as patients' welfare or the validity of research) may be influenced by a **secondary interest** (such as financial gain). .. Financial relationships (such as employment, consultancies, stock ownership or options, honoraria, patents and paid expert testimony) are the **most easily identifiable conflicts of interest** and the most likely to undermine the credibility of the journal, the authors and science itself ... Purposeful failure to disclose conflicts of interest is a **form of misconduct**."[1]

Why our Standards Are Not Fit for Purpose

- In the 1950 during the Cold War, the U.S. Department of Defense (DOD) was charged with developing radar (radio-based detection and ranging) capable of detecting incoming Soviet missiles.
- This meant the U.S. Military had a major interest in producing radar installations that were as powerful as possible
- Objections raised by local U.S. communities upset at appearance of such facilities in their neighbourhoods were dismissed as a minor cost in comparison with the perceived benefit of preventing nuclear annihilation.
- A further complication during this historical period was that microwaves were widely used in diathermy, then a popular medical treatment for a number of conditions thought to be improved by tissue heating.
- Hence, it was convenient for both military and medical circles in the U.S. to choose to believe uncritically the hypothesis that the only way in which microwave radiation could affect biological organisms was by heating them and to ignore early scientific indications to the contrary.
- When it came to the setting of standards regulating the level of microwave radiation to which people could safely be exposed, the medical profession was deemed to have too much vested interest in diathermy to participate, while the obvious conflict of interest involved in making the military responsible for setting acceptable microwave power limits was ignored [2]
- By 1960, all three branches of the US military had concluded, on the basis of one man's calculations and some minimal experimentation (involving disruption of food-motivated behaviour in irradiated laboratory animals)[3] that 10 mW/cm2 was a safe power density limit to prevent excessive tissue heating, and after some debate, this figure duly became the basis of the first IEEE/ANSI C95.1 microwave standard in 1966. Thereafter, the DOD treated all reports of biological effects of RF power densities less than

1 International Committee of Medical Journal Editors. Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals. Available online: http://www.icmje.org/about-icmje/ faqs/icmje-recommendations/ (accessed on 29 April 2019)

2 Maisch, D.R. The Procrustean Approach: Setting Exposure Standards for Telecommunications Frequency Electromagnetic Radiation: An Examination of the Manipulation of Telecommunications Standards by Political, Military and Industrial Vested Interests at the Expense of Public Health Protection. Ph.D. Thesis, University ofWollongong,Wollongong, Australia, 2010.

3 https://icbe-emf.org/wp-content/uploads/2023/08/Chamberlin.RSM-slides.-June-14-2023.rev23-8-3.pdf (slide 10)

10mW/cm2 as a threat to national security and shut down any lab that produced them[4] [5] [6].

- The Soviets in the meantime concentrated on reports of sub-thermal microwave effects, resulting in an exposure limit of 0.01 mW/cm2. **1000 times less than the U.S. Limit.**

- This posed a problem for U.S. military planners. If any of its western European allies were tempted to adopt the standard based on biological effects found at sub-thermal levels like the Soviet Union did, then deployment of American radar installations in Europe would be jeopardized.

- Therefore, concurrent with the space/arms race, an RF standards race was played out in various international organizations, such as WHO (theWorld Health Organization) and NATO (the North Atlantic Treaty Organization)[7]. Internationalization of what was by now the unchallengeable dogma that tissue was the only possible biological effect of RF was was achieved by embedding individuals committed to the thermal-only narrative in WHO and NATO

- **In 1971**, Sol Michaelson, the American who had been most instrumental in the adoption of the thermal-only standard by ANSI C95.1, was appointed to a committee called the Task Group on Environmental Health Criteria for Radiofrequency and Microwaves, jointly convened by WHO and the International Radiation Protection Agency (IRPA). The founding chairman of IRPA was Michael Repacholi, an Australian also committed to the thermal-only dogma.

- **In 1992**, IRPA morphed into ICNIRP (the International Commission on Non Ionizing Radiation Protection), with Repacholi still as the chair.

- **In 1998**, ICNIRP brought out the Guidelines document which still enshrines the ANSI thermal-only dogma as the basis of national standards throughout the English-speaking world.

- **Another Stakeholder supporting thermal-only dogma:** In the early 1970s, a growing popular environmental movement and the consequent espousal by the US Environmental Protection Agency (EPA) of **a precautionary approach** to a great many potential health hazards were seen **by corporate interests** as a threat to the foundations of industrial society[8].

- **The challenge for industry:** How best to respond to legislative restrictions on the activities of corporations—**and in particular to the science that led to those restrictions?**

- A major response: The establishment in **1972** of a **'Business Roundtable'** consisting of many of America's CEOs.

- **It's purpose:** promoting "**less unwarranted intrusion** by government into business affairs" and ensuring that "the business sector in a pluralistic society should play an active and **effective role in the formation of public policy**"[9]

- Lobby offices were established in Washington, and a number of industry-backed think tanks created to come up with strategies **applicable to all industries**. Measures adopted with respect to the biological

4 Becker, R.O.; Seldon, G. The Body Electric; Morrow: New York, NY, USA, 1985
5 Marino, A.; Ray, J. The Electric Wilderness; San Francisco Press Inc.: San Francisco, CA, USA, 1986.
6 Frey, A. Opinion: Cell phone health risk? The Scientist. 2012. Available online: https://www.the-scientist.com/news-opinion/opinion-cell-phone-health-risk-40449 (accessed on 29 April 2019)
7 Maisch, D.R. The Procrustean Approach: Setting Exposure Standards for Telecommunications Frequency Electromagnetic Radiation: An Examination of the Manipulation of Telecommunications Standards by Political, Military and Industrial Vested Interests at the Expense of Public Health Protection. Ph.D. Thesis, University of Wollongong,Wollongong, Australia, 2010.
8 Bakan, J. The Corporation: The Pathological Pursuit of Profit and Power; Simon and Schuster: New York, NY, USA, 2004.
9 Bakan, J. The Corporation: The Pathological Pursuit of Profit and Power; Simon and Schuster: New York, NY, USA, 2004.

effects of microwave emissions **mirrored those of the tobacco industry**. They included the following:
  - **Creation of an air of uncertainty about the science**
  - **Looking at quantity not quality in evidence assessment**
  - **Population of regulatory bodies by industry insiders/'Poacher turned game-keeper'**
- I would also add these factors in:
  - **International Agreements/Legal Frameworks**
  - **Pressuring of Honest Scientists**
  - **Quality of Mainstream Media Coverage**

Creation of an air of uncertainty about the science

- Given that biological organisms are formidably complex and that science by its nature rarely involves complete certainty, this is not too difficult.

- **Mark Hertsgaard and Mark Dowie** in their special investigation for the **Nation 29th March 2018**[10] (this piece underwent extensive legal review and fact-checking before publishing.)[11]describe how funding friendly research has perhaps been the most important tactic by the wireless telecoms, because it **conveys the impression** that the scientific community **truly is divided.** The idea is not to win the argument, just **to keep the argument going.** Dowie and Hertsgaard uses the phrase "war-gaming the science" to describe this. Here's a 2-part interview with Hertsgaard from 2018, sadly it's still completely relevant:
  - **Part 1:** 'How the Wireless Industry Convinced the Public Cellphones Are Safe & Cherry-Picked Research on Risks' https://youtu.be/x-1AgOl5MjQ
  - **Part 2:** 'Big Wireless War Gamed the Science on Risks While Making Customers Addicted to Their Phones': https://youtu.be/un-vXIzIIOo

- Thus, when studies have linked wireless radiation to cancer or genetic damage –
  - as Wireless Technology Research project (WTR), did in **1999**;
  - as the WHO's Interphone study did in **2010**;
  - and as the US government's NTP did in **2018**

  industry and others can point out, ***accurately but perhaps not honestly***, that other studies disagree.

- But just to be sure: A campaign of disinformation was launched. Whenever a piece of science inimical to industry or Air Force interests appeared, **contractors were hired to discredit it** by apparently repeating the experiments, but actually changing **critical factors to produce more funder-friendly results.**

10 https://www.thenation.com/article/archive/how-big-wireless-made-us-think-that-cell-phones-are-safe-a-special-investigation/ (last accessed on 20 August 2024)
11 https://www.thenation.com/article/archive/letters-from-the-may-21-2018-issue/ (last accessed on 20 August 2024)

- **Frey**[12] describes one such attempt as follows:
  - "After my colleagues and I published in 1975[13]**,** that exposure to very weak microwave radiation opens the regulatory interface known as the blood brain barrier (BBB), a critical protection for the brain, the Brooks AFB group selected a contractor to supposedly replicate our experiment.
    - **For 2 years**, this contractor presented data at scientific conferences stating that microwave radiation had **no effect** on the BBB.
    - After much pressure from the scientific community, he finally revealed that he had **not**, in fact, replicated our work.
    - We had injected dye into the **femoral vein** of lab rats after exposure to microwaves and observed the dye in the brain **within 5 min**.
    - The Brooks contractor had stuck a needle into the animals' bellies and **sprayed the dye onto their intestines**. Thus it is no surprise that when he looked at the brain **5 min later**, he did not see any dye; the dye had yet to make it into the circulatory system."
- The continuing nature of such campaigns is suggested by Maisch[14], who writes: "A survey conducted by the publication Microwave News in **2006** consisted of examining papers on microwave effects on DNA that were published in peer-reviewed journals since **1990**.
  - A total of **85** papers on the topic were identified. **43** of the papers reported finding a biological effect and **42** did not.
  - Of the **42 no-effect papers**, **32** were identified as having been funded by either the U.S. Air Force or industry.
  - With the **43 papers that reported effects**, only **3** were identified as being funded by Air Force or industry. This survey thus suggests that the source of funding has a strong influence on the outcome of research".
- When Henry Lai, a professor of bioengineering at the University of Washington, analysed **326** safety-related studies completed between **1990 and 2006**, he discovered that
  - **56%** found biological effects from mobile phone radiation
  - But when Lai sorted the studies according to their funding sources, a different picture emerged:
    - **67%** of the **independently funded** studies found a biological effect,
    - while only **28%** of the **industry-funded** studies did.
    - These are similar to the figures Oceania Radiofrequency Scientific Advisory Association (ORSAA) arrived at, as outlined below.
    - Lai's findings were replicated by a 2007 analysis in Environmental Health Perspectives, concluding that industry-funded studies were **two and a half times less likely** than independent studies to find health effects.
- The worlds largest categorised online database of peer-reviewed studies on anthropogenic EMR has been constructed by Oceania Radiofrequency Scientific Advisory Association https://www.orsaa.org/. **ORSAA**

12 Frey, A. Opinion: Cell phone health risk? The Scientist. 2012. Available online: https://www.the-scientist.com/news-opinion/opinion-cell-phone-health-risk-40449 (accessed on 29 April 2019).

13 Frey, A.H.; Feld, S.R.; Frey, B. Neural function and behaviour: Defining the relationship. Ann. New York Acad. Sci. 1975, 247, 433–439. [CrossRef]

14 Maisch, D.R. The Procrustean Approach: Setting Exposure Standards for Telecommunications Frequency Electromagnetic Radiation: An Examination of the Manipulation of Telecommunications Standards by Political, Military and Industrial Vested Interests at the Expense of Public Health Protection. Ph.D. Thesis, University of Wollongong,Wollongong, Australia, 2010.

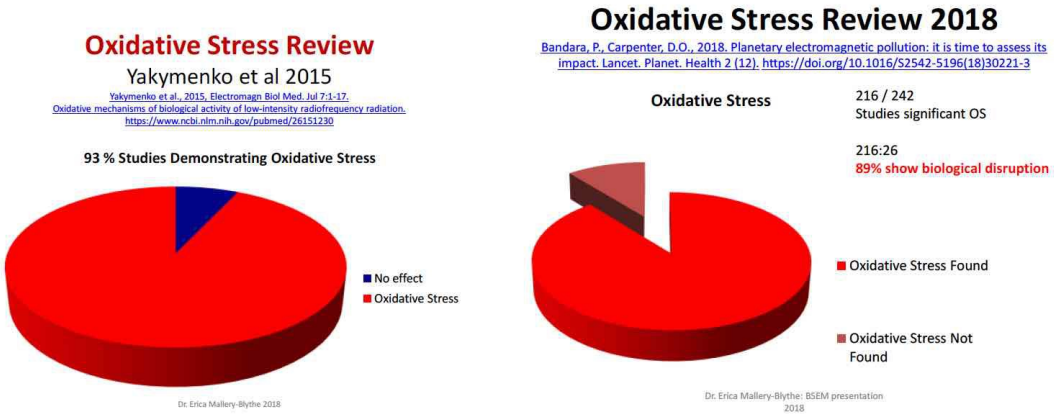
is an independent organisation **not linked to government or industry.** [Here's useful a video](#) of them discussing their database of papers and how they classified them and what it tells them**. They evaluated these studies and then found:**

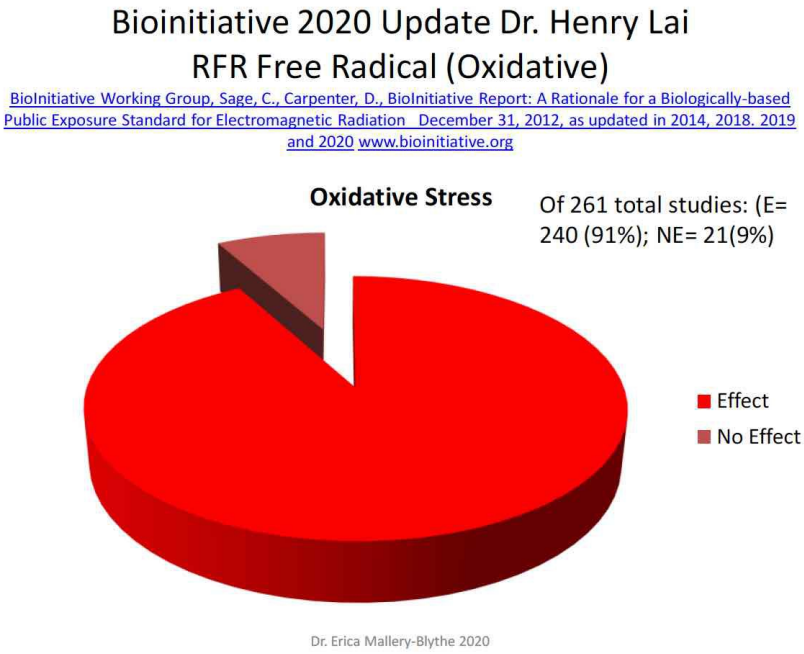
- **68%** of **2266 studies** covering humans, animals, plants and populations have demonstrated **significant** biological or health effects

- **89%** of experimental studies looking at oxidative stress (makes cells **more susceptible** to DNA Damage) showed **significant** effects **(216 of 242)**

- The scientific evidence that cell phones and wireless technologies in general can cause cancer and genetic damage via oxidative stress is not definitive, but it is abundant and has been increasing over time. Contrary to the impression that most news coverage has given the public.

- Regarding how 'weak' or strong this damage is, it should be noted that oxidative stress can damage multiple biological systems and is implicated in many diseases of high public health importance (in addition to cancer) such as Alzheimer's, cardiovascular disease and infertility. The effects are **cumulative (in a similar way to cigarette smoking)** so risk will increase with total cumulative dose and some individuals will be more susceptible than others.





Looking at quantity not quality in evidence assessment:

- Once approximately equal numbers of papers had been installed in the scientific literature concluding that sub-thermal levels of microwaves on the one hand do, but on the other hand do not, have harmful biological effects, the narrative was promulgated that one cancels out the other without regard to the quality of the studies and their source of funding.[15]

Population of regulatory bodies by industry insiders/'Poacher turned game-keeper':

- The appointment of insiders to regulatory roles by Big Wireless has been vital to keep the status quo.
- ICNIRP is a self-selected, private (non-governmental) organization, populated exclusively by members invited by existing members.
- All ICNIRP members are required to post on the organization's website detailed declarations of interest (DOIs)
- However, closer inspection of these DOIs reveals a good many of the sections of a good many of the forms remain unfilled, and a detailed list of undeclared conflicts of interest among ICNIRP members has been published by a group of concerned citizens.[16]
- The relevant section of WHO is essentially identical to ICNIRP[17]: **Michael Repacholi**, the founder of ICNIRP, established the WHO International EMF Project (IEMFP) in 1996 and remained in charge of it until 2006[18], when he reportedly resigned after allegations of corruption[19] to officially become an industry consultant[20].
- In 2004, Repacholi stated in a conference presentation that the IEMFP was able to **"receive funding from any source through Royal Adelaide Hospital; an agency established through WHO Legal Department agreement to collect funds for the project"**—an arrangement that reportedly enabled receipt of annual payments of $150,000 **from the cellphone industry**[13,21]
- In the USA, the Federal Communications Commission, whose function it is to regulate the wireless industry in that country, has been openly characterized by the Edmond J.Safra Center for Ethics at Harvard University as "a captured agency"[22] At the time of the report Tom Wheeler was Chairman of the FCC with deep ties to big wireless. Wheeler was nominated as FCC chairman by former President Obama in 2013 after raising more than **$700,000** for his presidential campaigns. Wheeler lead the two most powerful **industry lobbying groups**: The National Cable & Telecommunications Association (NCTA)

15 Pockett, S. Public health and the radio frequency radiation emitted by cellphone technology, smart meters and wifi. N. Z. Med. J. 2018, 131, 96–106.
16 AVAATE. 2015. Available online: http://www.avaate.org/IMG/pdf/escrito_web_icnirp_ingles_final.pdf (accessed on 29 April 2019).
17 Hardell, L.World Heath Organization, radiofrequency radiation and health—A hard nut to crack (review). Int. J. Oncol. 2017, 51, 405–413. [CrossRef]
18 Maisch, D.R. The Procrustean Approach: Setting Exposure Standards for Telecommunications Frequency Electromagnetic Radiation: An Examination of the Manipulation of Telecommunications Standards by Political, Military and Industrial Vested Interests at the Expense of Public Health Protection. Ph.D. Thesis, University ofWollongong,Wollongong, Australia, 2010.
19 Adlkofer, F. How the Mobile Communication Industry Deals with Science as Illustrated by ICNIRP versus NTP; Pandora Foundation for Independent Research. 2018. Available online: https://stiftung-pandora.eu/wpcontent /uploads/2018/11/Pandora_Adlkofer_Dealing-with-NTP-Nancy-Draft_181026_en.pdf (accessed on 29 April 2019).
20 Slesin, L. It's Official: Mike Repacholi Is an Industry Consultant and He's Already in HotWater. In Microwave News; 2006. Available online: https://microwavenews.com/CT.html (accessed on 29 April 2019).
21 Slesin, L. WHO watch: Mike Repacholi and the EMF charade. Microwave News, 2005; XXV.
22 Alster, N. Captured Agency: How the Federal Communications Commission is Dominated by the Industries It Presumably Regulates; Harvard University: Cambridge, MA, USA, 2015.

and the Cellular Telecommunications & Internet Association, or, the CTIA. See the 2016 video where he talks about 5G from the 25 minute point to the 30 minute point.

- Following Wheeler, Ajit Pai, a lawyer, became chairman of the FCC until 2021. Between 2001 and 2003 he served as Associate General Counsel at Verizon Communications Inc., where he handled competition and regulatory matters. Pai was appointed to the FCC by Barack Obama in 2012 and then made FCC Chairman by Donald Trump in January 2017.

- Members of scientific expert committees reporting to Government also need to be free from conflicts of interest. For example Martin Gledhill, as well as being New Zealand's Ministry Of Health's representative on the Committee, derives a significant portion of his income by providing RF measurement services to all the Telcos operating in the country.

- Through an independent consultancy called EMF Services, correspondence between the author and Mr. Gledhill failed to reveal the precise methodology by which these measurements are made because the report in which this is presumably detailed is owned by SPARK (a major Telco in New Zealand). Although Mr. Gledhill asked SPARK if he could send it, they refused.

- The EMF Services website describes Martin Gledhill as New Zealand's representative to the WHO EMF Project—the same WHO project started by Michael Repacholi and a member of the IEEE International Committee on Electromagnetic Safety—the same committee that enshrined the first thermal-only standard in 1966. Thus, at least this core member of the NZ InterAgency Committee has a vested interest in retaining thermal-only regulatory limits.

International Agreements/Legal Frameworks

- The New Zealand government, in common with many others campaigned against the TransPacific Partnership Agreement (TPPA), then signed a renamed version of it the Comprehensive and Progressive Agreement for Trans-Pacific Partnership(CPTPPA).

- Countries signed up to such agreements have a realistic fear of being sued for passing any law that impacts the profits of any of the multinational corporations that promote such agreements.

- A suit being settled under the investor state dispute mechanisms of the CPTPPA by a 3 international court consisting of **2** judges nominated by the **organization that brings the suit** and **1** by the **sued government**.

- The UK concluded negotiations to join the CPTPP on 31 March 2023 and signed the Protocol of Accession on 16 July 2023. Entry into force of the agreement will take place once the UK and CPTPP Parties have finished their legislative processes. This is expected to happen in the second half of 2024.

Pressuring of Honest Scientists

This also relates to the creation or confection of uncertainty discussed earlier. In addition, what also needs to be recognised is the toll it takes on honest scientists who can experience attacks on their reputation and careers. This would mean that other scientists would be discouraged from some areas of inquiries or may wittingly or unwittingly shy away from conclusions because of the hostility they would expect to encounter.

Science is strengthened by honest interrogation and challenge but weakened and made murky when it is done dishonestly. As some examples on the next page show:

Jerry Phillips

During the 1990's, Biochemist Jerry Phillips was hired by cellphone giant Motorola to study the effects of the RF Radiation emitted by cell phones.

Phillips and his colleagues looked at the effects of different RF signals on rats and on cells in a dish. Phillips says the relationship between him, and his employer was initially cordial, but soured once he submitted research data to Motorola which found harmful effects to the DNA structure as a result of exposure to radio-frequency radiation.

The negative results were not to Motorola's liking, and they began putting pressure on him. See this independent investigation from the year 2000: 'Public Exposure: DNA, Democracy and the 'Wireless Revolution"[23] It's definitely worth watching fully but the portions relevant to the above are at these timestamps: 33:05-33:40; 34:35-35; 35:06-35:30

Dr Henry Lai & Narendra Singh

These researchers were looking at the effects of non-ionizing radiation. They used a level of radiation considered safe by FCC standards and found that the DNA in the brain cells of the rats was damaged-or broken by exposure to it. After publishing the research in 1995, Dr. Lai would later learn of a full-scale effort to discredit the experiments.

Lai and Singh caused controversy when they publicly complained about restrictions placed on their research by their funders, the Wireless Technology Research (WTR) program. In response to this public action, the head of the WTR sent a memo asking then-university president Richard McCormick to fire Lai and Singh. McCormick refused, but the message was clear. Get rid of anyone who makes our products look bad.

In a leaked internal Motorola memo executives claimed to have succeed in "War-Gaming " the Lai-Singh experiments. "This shocked me," Lai says, "As a scientist doing research, I was not expecting to be involved in a political situation. It opened my eyes on how games are played in the world of business. You don't bite the hand that feeds you. The pressure is very impressive."

Dr Kent Chamberlin

Dr Kent Chamberlin presented to a town considering adding cell antennas to a water tower. He had led a commission set up by New Hampshire which found that a safe set back of cell tower to be 500m in order to provide reasonable protection for most people whilst not impeding the use of wireless communication.

The Brazil study was used to show the dangers of living near such antennas.

In the town's next meeting, they brought in a company that the town paid to evaluate the proposed installation:

23 https://youtu.be/IJbCa-MZwXM (accessed last on 20 August 2024)

- As seen in the recording of their presentation the presenters claimed to be impartial
- The industry has paid consultants to discredit studies such as the **New Hampshire Commission Report**.
- The second presenter omits that he is being paid by the telecommunications industry, although his work for them has been documented
- The second presenter He stated that "I'm not presenting my views about this", not mentioning that he submitted a paper challenging the findings of the Brazil report
- He also did not mention that the authors of the Brazil study published a response to his criticisms
- He only referenced government agency reports to discredit the paper. This is significant because the Commission found that many of the agencies involved in regulating radiation levels are captured.

Quality of Mainstream Media Coverage

10 mins of 30 min VIDEO (Important): This is a valuable film from Panorama broadcast in May 2007. Shows how WHO and ICNIRP does not reflect scientific evidence on harms. It features Professor Henry Lai, a world authority, who was put under great pressure after publishing evidence of harms and Mike Repacholi who set WHO's position and founded the ICNIRP https://www.youtube.com/watch?v=_k5gnA-PeXc&t=1267s

More about Mike Repacholi here: https://microwavenews.com/news-center/repacholi-half-who-emf-project-funding-came-industry

13 min VIDEO: In April 2019 The BBC acted as if it's own Panorama documentary never happened https://www.youtube.com/watch?v=70tEANB34cQ

30 min VIDEO: Here Prof Tom Butler and and Claire Edwards discuss among other things BBC's reporting on 5G harms and particularly damaging frequency modulation in WiFi, 4G and 5G https://www.youtube.com/watch?v=9nYSvUF4dBQ

All the Above Contribute to Misleading Statements Being Made:

1. "Animal studies do not suggest an effect of RF fields on cancer."

- The National Toxicology Program (NTP) of the US Department of Health which cost $30 million and took more than ten years to complete, **clearly demonstrates that RF fields do cause cancer**. According to the 19-member peer review panel that examined this study[24], its results provide **"clear evidence"**—the highest standard of proof—that RF fields cause **schwannomas** (malignant tumours of the Schwann cells that sheath all myelinated nerves) in the hearts of male rats.

- The NTP study also reports less clear evidence that RF causes various other tumours (gliomas in the brain, pheochromocytomas in the adrenal gland, and tumours of the prostate and pancreas).

  It may be worth noting at this point that in a court case an employee's acoustic neuroma, a kind of brain tumour, was found to be caused by mobile phone use required as part of his job. The mobile phone network employer then appealed but still lost. A bit more about this at the end of this document.

- Despite the magnitude the NTP study, the **FDA has stated that they do not accept the findings**. As a result, Dr. Melnick and many other scientists have written extensively about the findings of the study, debunking many unfounded criticisms about it. In fact, Dr. Lennart Hardell and Dr. Michael Carlberg

24 Peer Review of the Draft NTP Technical Reports on Cell Phone Radiofrequency Radiation; National Institute of Environmental Health Sciences Research Triangle Park, NC 2018. Available online: https://ntp.niehs.nih.gov/ntp/about_ntp/trpanel/2018/march/peerreview20180328_508.pdf (accessed on 29 April 2019).

published a scientific commentary about the NTP study, stating "there is clear evidence that RF radiation is a human carcinogen, causing glioma and vestibular schwannoma".

- A **non-peer-reviewed ICNIRP note** criticizing the methodology and minimizing the significance of the NTP study, is often used to discredit the study[25]. Reports which do this often fail to mention a published **rebuttal of the ICNIRP criticisms**[26] which was accepted by the journal Environmental Research on 7 September 2018.

- The **NTP and Ramazzini** studies **are the most comprehensive animal studies with regard to cancer and exposure to mobile phone and base station signals** that have been conducted to date.

- Often ignored is a second major rodent study (available online 18 March 2018), **done separately** in a different country (Italy) by different investigators (the Ramazzini Institute), involving **2248 rats and confirming the results of the NTP study**[27].

- The scientific quality and standard of laboratory techniques are high, especially in the NTP study. Both applied strict guidelines in **good laboratory practice** (GLP) throughout the experimental procedure, and advanced procedures in pathology and statistics. Please see the summary in the BERENIS (the authority in Switzerland on non-ionising radiation) newsletter.

- Many institutions would prefer the NTP study to go away, the same can even be said for senior staff within the NTP too! https://microwavenews.com/news-center/ntp-final-rf-report

- However the study **cannot be ignored**, perhaps that's why planned continued research is not on the cards.

- After the 10 year study showing clear scientific evidence that lifelong exposure to low-level RF radiation causes cancer ended in 2018. Then the NTP announced a new project in September 2019. The new project was designed to explain **how** RF radiation causes cancer.

- However, in **January 2024** the U.S. National Toxicology Program (NTP) quietly mentioned on a fact sheet it had closed down its RF radiation research program. Indeed, it appears that work effectively stopped some time ago. It turns out that **none** of those experiments to **explore mechanisms** of cancer causation were ever carried out.

- This video contains views from **both sides** (industry and Devra Davis of EHtrust.org as to what might be going on: https://youtu.be/6AKX_Uj3luM

- For the first time in more than 50 years, U.S. civilian agencies have no ongoing research on the health effects of non-ionizing electromagnetic radiation.

- Following a similar pattern, in 2019 WHO's International Agency for Research on Cancer (IARC) put RF on the list of **high priority** agents for reevaluation during **2020-2024**. The reevaluation never happened. This despite the pressure for a new review in light of the **long-term animal study** carried out by the U.S. National Toxicology Program (NTP) which showed **clear evidence that RF causes cancer**. The **2011** IARC "possible" cancer risk designation was based **on epidemiological studies**. The **new animal data** led some to argue that IARC should now raise the RF risk level to **"probable" or higher**.

25 ICNIRP. ICNIRP note on recent animal carcinogenesis studies. Available online: https://www.icnirp.org/cms/upload/publications/ICNIRPnote2018.pdf (accessed on 29 April 2019)

26 Melnik, R.L. Commentary on the utility of the National Toxicology Program study on cell phone Environ. Res. 2019, 168, 1–6. [CrossRef] [PubMed]

27 Falcioni, L.; Bua, L.; Tibaldi, E.; Laurioloa, M.; De Angelis, L.; Gnudi, F.; Mandrioli, D.; Manservigi, M.; Manservisi, F.; Manzoli, I.; et al. 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. Environ. Res. 2018, 165, 496–503. [CrossRef]

2. "No Dose Response Relationship so it can't be Non-ionising Radiation Exposure"

The authors of the NTP study specifically comment on the fact that this result is not dose-related with respect to RF; which actually accords well with the unexpected finding of a counterintuitive, inverted-U-shaped dose–response curve in relation to RF damage of the blood–brain barrier mentioned earlier[28] .

3. "RF research is continuing in a number of areas, but data currently available provides no clear and persuasive evidence of any other effects."

- Given that there are now thousands of peer-reviewed papers in the scientific literature documenting multiple "other effects" of RF, the obvious question is **"persuasive to whom"?**

- The data documenting these multiple other effects were found persuasive by the peer reviewers of reputable scientific journals in which they are published. Those who didn't find any of this evidence persuasive then it we need to understand why.

- In the absence of any alternative explanation, it seems likely that the answer to this question is simply, "because ICNIRP (and/or WHO and/or the wireless industry employers of many of the committee members) said so".

- All three of these entities have been shown to be invested in finding reports that say sub-thermal levels of RF have biological effects "unpersuasive". However this is not a valid reason for ignoring and/or dismissing such a large volume of evidence as often happens; some of which is briefly discussed below.

    - **Psychiatric problems**, including depression: For a review of a large number of peer-reviewed studies in this area, see[29]. Because inexplicable mental health issues among the young are an increasing problem, this must be seen as a rather important "other effect" of RF radiation.

    - **Diabetes:** Wi-Fi irradiation of young rats causes damage to the pancreas and reduced insulin secretion[30] [31] and **is thus the standard method of producing an animal model of diabetes.** Epidemiological evidence[32] shows statistically significant increases in pre-diabetic blood markers in **children** attending a school near a cell tower, as compared with an otherwise identical group of children whose school is further from a cell tower. These findings suggest that
        - cell towers **should not be built near schools** and
        - **Wi-Fi in schools should be replaced with cabled internet connections,** accessed by multiple jack points for convenience.

    - **Breakdown of the blood–brain barrier (BBB):** Double-blind studies done as long ago as 1975 showed that RF causes abnormal leakage of fluorescein dye from the blood of rats into their brain

28 Nittby, H.; Brun, A.; Eberhardt, J.; Malmgren, L.; Persson, B.R.R.; Salford, L.G. Increased blood-brain barrier permeability in mammalian brain 7 days after exposure to the radiation from a GSM-900 mobile phone. Pathophysiology 2009, 16, 103–112. [CrossRef] [PubMed]

29 Pall, M.L. Microwave frequency electromagnetic fields (EMFs) produce widespread psychiatric effects including depression. J. Chem. Neuroanat. 2016, 75, 43–51. [CrossRef]

30 Masoumi, A.; Karbalaei, N.; Mortazavi, S.M.J.; Shabani, M. Radiofrequency radiation emitted fromWi-Fi (2.4 GHz) causes impaired insulin secretion and increased oxidative stress in rat pancreatic islets. Int. J. Radiat. Biol. 2018, 94, 850–857. [CrossRef]

31 Topsakal, S.; Ozmen, O.; Cicek, E.; Comlekci, S. The ameliorative effect of gallic acid on pancreas lesions induced by 2.45 GHz electromagnetic radiation (Wi-Fi) in young rats. J. Radiat. Res. Appl. Sci. 2017, 10, 233–240. [CrossRef]

32 Meo, S.A.; Alsubaie, Y.; Almubarak, Z.; Almutawa, H.; AlQasem, Y.; Hasanato, R.M. Association of exposure to radio-frequency electromagnetic field radiation (RF-EMFR) generated by mobile phone base stations with glycated haemoglobin (HBALC) and risk of type 2 diabetes mellitus. Int. J. Environ. Res. Public Health 2015, 12, 14519–14528. [CrossRef] [PubMed]

tissue[33], and disingenuous attempts to discredit that finding constituted the first documented dirty tricks campaign in the area[34]. Honest attempts to replicate the 1975 experiments proved hard to interpret, until it was realized that a counterintuitive, inverted-U-shaped dose–response curve held—at which point it became clear that the parameters involved in **mobile phone use are particularly effective in disrupting the BBB[35]**. Because disruption of the BBB is a known contributor to the onset and development of Alzheimer's disease and other forms of dementia[36] [37], at least two public health conclusions might reasonably be drawn from these findings. First, it would be prudent to advise the increasing population of elderly citizens to avoid cell phones, smart meters, and Wi-Fi. But perhaps more importantly, chronic exposure of the young to RF now starts in the womb and continues throughout babyhood (wireless baby monitors), childhood (wrist-worn child locators), and adolescence (smart phones, Wi-Fi). Because the biological effects of RF are known to be cumulative, urgent steps should be taken to **reduce the exposure of babies, children, and teenagers to radiofrequency radiation, to avoid an epidemic of early-onset dementia starting in middle age.**

- **Death of hippocampal neurons:** The mechanisms of memory are presently ill-understood, but one thing that is known for sure is that a properly functioning hippocampus is essential for the laying down of new memories. Hence the demonstrated loss of hippocampal neurons in teenaged rats exposed to RF[38] reinforces the warning above.

- **Reproductive damage:** A review of multiple studies on the effects of cell phone radiation on male reproduction[39] reveals that exposure to RF
  - increases oxidative stress and decreases sperm count, motility, and causes size and shape abnormalities **in rodents**;
  - increases oxidative stress, decreases motility, and causes size and shape abnormalities **of human spermatozoa in vitro;**
  - decreases concentration, motility, and viability of sperm in men using mobile phones, with these abnormalities being **directly related to duration of phone use**.

  Fewer studies have been done on female reproduction, but cell phone radiation is reported also to affect the reproduction of female mice by multiple mechanisms[40] .

- **Oxidative stress:** Oxidative stress[41] is a condition arising when free radicals (atoms or molecules that have developed unpaired electrons, which make the molecule unstable and highly reactive), outnumber antioxidants (compounds that neutralize free radicals by donating electrons to them). An excess of free radicals, also known as oxidative stress, is **implicated in virtually all of the degenerative diseases** afflicting humankind: atherosclerosis, heart disease, cancer, inflammatory joint disease, asthma, diabetes, dementia, and degenerative eye disease to name some of them. Oxidative stress also lowers immune function, which impacts the development of infectious diseases.

33 Frey, A.H.; Feld, S.R.; Frey, B. Neural function and behaviour: Defining the relationship. Ann. New York Acad. Sci. 1975, 247, 433–439. [CrossRef]
34 Frey, A. Opinion: Cell phone health risk? The Scientist. 2012. Available online: https://www.the-scientist.com/news-opinion/opinion-cell-phone-health-risk-40449 (accessed on 20 August 2024).
35 Nittby, H.; Brun, A.; Eberhardt, J.; Malmgren, L.; Persson, B.R.R.; Salford, L.G. Increased blood-brain barrier permeability in mammalian brain 7 days after exposure to the radiation from a GSM-900 mobile phone. Pathophysiology 2009, 16, 103–112. [CrossRef] [PubMed]
36 Nelson, A.R.; Sweeney, M.D.; Sagare, A.P.; Zlokovic, B.V. Neurovascular dysfunction and neurodegeneration in dementia and Alzheimer's disease. Biochim. et Biophys. Acta 2016, 1862, 887–900.[CrossRef]
37 Zenaro, E.; Piacentino, G.; Constantin, G. The blood-brain barrier in Alzheimer's disease. Neurobiol. Dis. 2017, 107, 41–56. [CrossRef] [PubMed]
38 Bas, O.; Odaci, E.; Kaplan, S.; Acer, N.; Ucok, K.; Colakoglu, S. 900 MHz electromagnetic field exposure affects qualitative and quantitative features of hippocampal pyramidal cells in the adult female rat. Brain Res. 2009, 1265, 178–185. [CrossRef]
39 La Vignera, S.; Condorelli, R.A.; Vicari, E.; D'Agnata, R.; Calogero, A.E. Effects of the exposure to mobile phones on male reproduction: A review of the literature. J. Androl. 2012, 33, 350–356. [CrossRef]
40 Shahin, S.; Singh, S.P.; Chaturvedi, C.M. Mobile phone (1800 MHz) radiation impairs female reproduction in mice, Mus musculus, through stress induced inhibition of ovarian and uterine activity. Reprod. Toxicol. 2017, 73, 41–60. [CrossRef]
41 Alkadi, H. A review on free radicals and antioxidants. Infect. Disord. Drug Targets 2019. [CrossRef] [PubMed]

Because low-intensity radiofrequency radiation is now **an accepted cause** of oxidative stress (for a review of multiple individual studies showing this see[42]), at least some role in the development of all of the above health problems might reasonably be attributed to the radiofrequency radiation in which **virtually everyone on earth is now bathed on a daily basis**.

- **DNA damage**: DNA damage caused by non-thermal exposure of cultured cells to RF was one of the earliest reported effects of radiofrequency radiation[43]. For a review of many more recent studies confirming that RF causes DNA damage, see[44].

4. "The ICNIRP limits used in the standard are based on a review of all relevant research on health effects, regardless of the mechanisms that might be involved."

In philosophical terms, this is known as an **argument from authority**. Carl Sagan's view of arguments from authority is: "One of the great commandments of science is "mistrust arguments from authority". .. Too many such arguments have proved too painfully wrong. Authorities **must prove their contentions** like everybody else"[45].

The ICNIRP is a small, self-selected, non-governmental organization with known ties to the industry whose expansion it is charged with regulating.

Only a few dozen scientists continue to defend the thermal- only paradigm[46]. As of July 4, 2024, **266** EMF scientists from 44 nations have signed the International EMF Scientist Appeal[47], which calls on WHO, the United Nations, and all member nations to issue health warnings about the risks of EMF exposure and to adopt much stronger exposure guidelines to protect humans and other species from sub-thermal levels of EMF.

5. "the presence of industry representatives on the Committee, have in practice never attempted to influence the Committee's conclusions on the health effects research and generally see the Committee as a means for them to stay abreast of recent developments. In addition, they are able to bring to the Committee's attention forthcoming developments in their industries that may have policy implications for our Government."

Where there are conflicts of interest, it is unwise to accept reassurances that compromises against public interest will not occur. History is replete with examples in wireless, tobacco, asbestos, x-rays, DDT, the list goes on.[48] (https://www.eea.europa.eu/publications/late-lessons-2)

Sometimes there is no need for industry representatives to influence the committee's conclusions. Expert committee members report to government. Governments around the world have shown themselves to be firmly and unshakably committed to the ICNIRP thermal-only dogma, exactly because that dogma allows unbridled expansion of the wireless communications industries. Individuals operating in tacitly understood narrow parameters within institutions are highly susceptible to group-think and dysfunctional decision-making.

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42 Dasdag, S.; Akdag, M.Z. The link between radiofrequencies emitted from wireless technologies and oxidative stress. J. Chem. Neuroanat. 2016, 75, 85–93. [CrossRef]

43 Chen, K.M.; Samuel, A.; Hoopingarner, R. Chromosomal aberrations of living cells induced by microwave radiation. Environ. Lett. 1974, 6, 37–46. [CrossRef] [PubMed]

44 Belpomme, D.; Hardell, L.; Belyaev, I.; Burgio, E.; Carpenter, D.O. Thermal and non-thermal health effects of low intensity non-ionizing radiation: An international perspective. Environ. Pollut. 2018, 242, 643–658. [CrossRef] [PubMed]

45 Sagan, C. The Demon-Haunted World: Science As a Candle in the Dark; Random House Publishing Group: New York, NY, USA, 2011.

46 Moskowitz, J.M. The ICNIRP Cartel and the 5G Mass Experiment. Available online: https://drive.google.com/file/d/1qNcaWa85khAk9YO9Z2J3nAFmVw9eMTHw/view (accessed on 20 August 2024).

47 EMFscientist.org. International EMF Scientist Appeal. Available online:https://emfscientist.org/

48 Late lessons from early warnings: science, precaution, innovation (summary): https://www.eea.europa.eu/publications/late-lessons-2

Why else would the FCC not do it's duty to keep up with science?[49] **In August 2021** the FCC was found to have not kept up with latest evidence and ordered to explain why it ignored scientific evidence showing harm from wireless radiation. The FCC standards are based on ICNIRP guidelines just like ours in the UK.

"Scientific evidence invalidates health assumptions underlying the FCC and ICNIRP exposure limit determinations for radio-frequency radiation, this has important implications for 5G. The paper demonstrates how the U.S.Federal Communications Commission (FCC) and the International Commission on Non-ionizing Radiation Protection (ICNIRP) have **ignored or inappropriately dismissed hundreds of scientific studies documentingadverse health effects at exposures below the threshold dose claimed by these agencies, which was used to establish human exposure limits.** "

The court found the FCC **failed to address**:

- impacts of long term wireless exposure
- impacts to children,
- the testimony of people injured by wireless radiation,
- impacts to wildlife and the environment
- impacts to the developing brain and reproduction.

The FDA and the FCC have been briefed on the NTP study's conclusions. These two federal agencies are responsible for regulating cell phone radiation. (FDA first **requested** the NTP study in 1999.) Yet up to now, neither has shown any inclination to warn the public of possible health risks. **Both remained silent** when the NTP released its interim findings and expressed concern over their implications for public health.

Most recently, **in August 2024,** Microwave News reported "A **third** RF systematic review commissioned by the World Health Organization's EMF Project is under fire. This one is on **RF–induced oxidative stress**. Last month, two other WHO reviews —on **pregnancy outcomes** and on **tinnitus**— were both called into question as critics called for them to be **retracted**.

A team of 14 from 6 countries, led by Felix Meyer of the German Office for Radiation Protection (BfS), identified **11,599** studies on oxidative stress in the frequency range **800-2450 MHz**. They then **eliminated 11,543** of them as not meeting their criteria for inclusion. Of the remaining **56**, there are 45 animal studies and 11 cellular studies.

Meyer and colleagues concluded:

"Overall, the effects were inconsistent across studies and there may be or may not be an effect of RF-EMF exposure, but the certainty of the evidence is very low."

The review has been met with scepticism —at least by those **not** connected to the WHO, ICNIRP or the BfS.

You can read the Microwave News report here[50]. It includes **Dr Henry Lai's** comments which helps explain why this review is being disputed.

Crucial background/historical context has also been published by Microwave News: "Will WHO Kick Its ICNIRP Habit?"[51]

49 https://ehtrust.org/in-historic-decision-federal-court-finds-fcc-failed-to-explain-why-it-ignored-scientific-evidence-showing-harm-from-wireless-radiation/
50 https://microwavenews.com/short-takes-archive/another-who-rf-systematic-review-challenged
51 https://microwavenews.com/news-center/can-who-kick-icnirp-habit

What About Those With an Interest in Knowing the True Risk?

Money talks as they say.

5G is an uninsurable technology when it comes to health effects and data security Lloyds of London nor Swiss RE will insure it.

In the previously cited article 'How Big Wireless Made Us Think That Cell Phones Are Safe: A Special Investigation' , two journalists checked this situation (20min read).

Surely this simple point is enough to ring alarm bells that there is inadequate precaution to protect the public from harm.

Earlier a 2017 Italian court case was mentioned that found in favour of an employee who said his acoustic neuroma was a result of mobile phone use as part of his job. In 2019 his employer INAIL lost its appeal and the original judgement was upheld.

It's worth reading this professionally translated Turin Court of Appeal verdict.[52] It recognised clear conflicts of interest in bodies setting exposure limits (ICNIRP) . The translation gives insight into the rigour used to arrive at the verdict.

It states the following:

“It is considered that **less weight** should be given to studies published by authors who have not declared the existence of conflicts of interest. In this case, conflict of interest situations may arise in relation to the assessment of the effect of radio frequencies on health, for example:

1. Cases where the author of the study advised the telephone industry or received funding for studies from the telephone industry, and;

2. If the author himself **is a member of the ICNIRP**.”

52 https://www.5ginmerton.com/_files/ugd/c1889a_9d53847699124bb885a511821ae3a5a0.pdf