

# The Price paid for 'blowing the whistle' in the Area of Mobile Phone Safety

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My troubles started in 1999, when I first 'blew the whistle' on the totally inadequate level of protection afforded to the public, against the electromagnetic emissions of Mobile Phones (Handys) and their Base-stations, by the Safety Guidelines published by the National Radiological Protection Board (NRPB). The NRPB is the UK statutory body that advises the Government on exposure to all kinds of radiation – both the 'ionising' variety associated with nuclear installations/weapons, and the *non-ionising microwave*<sup>1</sup> radiation used in Mobile Telephony. It should be remembered that it was about this time that the Independent Expert Group on Mobile Phones (IEGMP) was convened in the UK at the request of the Minister for Public Health, whilst the auction of the 3G licences was still some time off.

Two years later, a second wave of problems started, following the publication of a Report that I had been commissioned to write for the Scientific and Technological Option Assessment (STOA) Programme of the EU Directorate General for Research, at the instigation of a 'Green' Euro MP: but more about this later.

Let us first return to 1999, and recall that the NRPB Guidelines governing public exposure to the kind of radiation used in mobile telephony were then the most lenient in the civilised world, and a factor of **10 less** stringent than those of the International Commission for Non-Ionising Radiation Protection (ICNIRP), which subsequently replaced them in the UK on the recommendation of the IEGMP; indeed, the NRPB Guidelines permitted humans to be exposed to electric fields **64** times higher than the limit that is applicable to all *non-transmitting* electrical/electronic goods offered for sale in the EU under current legislation on ElectroMagnetic Compatibility (EMC), from which Mobile Phones are exempt. By contrast, it may be noted, that, at least in the UK, the NRPB Guidelines governing **human** exposure are only *guidelines* - they are **not** legally enforceable.

To appreciate why I felt compelled to 'blow the whistle', it is first necessary to understand the basis of the NRPB Guidelines (and also those of ICNIRP), for then their total inadequacy will become startlingly apparent. The use of microwave radiation (MWR) for heating water-based food is well-known in the context of microwave ovens. The human body is, however, itself predominantly water-based, and so it too gets heated up if exposed to MWR. Now it is an established medical fact that the human body can tolerate only a rather small temperature rise before health problems set in, the

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<sup>1</sup> Microwave radiation is electromagnetic radiation on the far side of the infrared from visible light; it has insufficient energy to directly break molecular bonds to produce electrically charged ions or highly reactive free radicals that are damaging to cells and tissue.

threshold temperature above which this occurs, in any particular case, depending on the physiological condition of the exposed person *and* on the prevailing environmental conditions. Since the magnitude of the temperature rise produced by exposure increases with the intensity (or ‘brightness’) of the radiation, it is *intensity* that the Guidelines restrict to ensure that the increase in body temperature does not become dangerously high. To allow for a reasonable range of variations between different people and differing environmental conditions, safety factors are incorporated into the derivation of permitted exposure levels; indeed, the use of *different* safety factors is the principal reason for the difference between the limits permitted by the NRPB Guidelines and those of ICNIRP.

As far as they go, these safety guidelines are fine – it is certainly necessary to ensure that we do not get overheated: the problem is that they do not go far enough, because they leave those exposed **vulnerable to any adverse health effects that might be provoked by influences of the radiation other than heating** – *i.e.* by **non-thermal influences**.

I had already known, for over 10 years, that such influences exist; indeed, I soon discovered that there is documented evidence stretching back over 30 years that MWR of an intensity *even lower* than that encountered during Mobile Phone use can exert non-thermal influences, particularly on living organisms – including humans. Why then, one reasonably asks, are such effects not taken into account in the formulation of safety guidelines governing human exposure? The late Dr. Neil Cherry has traced the reason to ...‘*a consistent pattern of bias, major mistakes and deliberate misrepresentations*’ by standard setting bodies – and ICNIRP, in particular - that prejudices rejection of such effects on the basis either that they are artefacts, or because there is (in their view) no established theory of the effects, which, in any case, already appear to violate common sense; for example, they typically become *more* pronounced as the intensity of the microwaves is *reduced*!

Such counter-intuitive behaviour reflects the *non-linear* nature of the effects, which depend not only on the external electromagnetic to which the living organism exposed, but also on the *state* of the organism. . Invariably, the most negative possible ‘spin’ is put on these non-thermal effects, and they are often dismissed as ‘false positives’, because, as we shall see, acceptance of them would entail the conclusion that the technology is potentially less than safe – a market unfriendly situation; by contrast, the better understood heating effect of MWR does *not* pose the same threat to health, since permitted exposure levels are restricted by the Safety Guidelines precisely to ensure that the technology is at least thermally safe!

Now it must be remembered that governments are committed to the continued growth of Mobile Telephony, for the financial benefits are enormous, and anyone who attempts to ‘rock the boat’ is seen as a potential threat. In the UK, for example, the auction of the 3G licences raised £22.5 Billion for the Exchequer.

It was soon apparent to me, however, from the experience of certain people living near to Base-stations that, despite compliance of the emissions with Safety Guidelines (often by factors of many 1000), all was not well; for there were many inter-consistent reports, from people living near *different* Base-stations, of a variety of adverse health symptoms, which could not possibly be attributed to the effects of over-heating, simply because the intensity was far too low to cause any heating! Thus, at least in this case, the Guidelines protected against ***what was not actually a problem!***

I thus began to consider whether the reported health problems could possibly be due to the non-thermal influences that NRPB Guidelines (and also those of ICNIRP) did not address; I should say, again, that I was no stranger to such effects, having known about them, in a much more general context than Mobile Telephony, for the preceding 10 years.

Upon investigation, it became apparent that the kinds of complaints (some reported also by users of Mobile Phone Handsets) were indeed *consistent* with the kinds of non-thermal influences that the

radiation was known to exert, on the basis of numerous scientific studies, from many laboratories around the world, which had been published in peer-reviewed journals during the preceding 30 years. For example, one of the commonest reports from people living near Base-stations is that of sleep disruption, the occurrence of which is certainly *consistent* with the way in which the radiation is known (from EEG studies) to affect REM sleep, and to severely reduce the amount of melatonin secreted by the pineal gland.

I considered particularly significant the fact that, unlike the heating effect of the radiation, most non-thermal effects were actually *contingent* on the **aliveness** of the organism irradiated. For example, it is only when alive that we have any electrical brain rhythms with which an external electromagnetic field, characterised by appropriately low frequencies, can interfere. Thus, not only did the existing Safety Guidelines protect against *what was not a problem, but they actually neglected the most discriminating factor of all – namely the aliveness of the people exposed!*

One is, of course, entitled to ask why the NRPB itself had not come to the same conclusion, given that the same information had been available to them as to me. One answer could be that they simply hadn't kept up to date. Rather than continuing to inform themselves appropriately, they instead resembled the *ancien regime*, in 'learning nothing and forgetting nothing.' It could be argued that their (and also ICNIRP's) old-fashioned, simplistic linear approach to a problem that is inherently **non-linear** only exacerbated things: outdated knowledge is worse than ignorance - at least the ignorant know what they do not know!

Those with a more suspicious frame of mind might argue, however, that by continuing to base their Safety Guidelines solely on the well-established heating effect of exposure to MWR, which occurs also in *inanimate* matter, there was no danger of undermining market growth - which their Master, the Government, was so keen to promote – provided the Guidelines were complied with. For it is known how to ensure that the amount of heating never becomes dangerously high – *simply keep the intensity of the radiation below the Guideline levels!* Indeed, one could not help but suspect that the NRPB was being manipulated both by the Government and the very industry whose products it was (on behalf of the Government) supposed to be regulating, to ensure that they did *not* pose a threat to public health. For a spokesperson of the NRPB had admitted around this time that... '*We are instructed not to admit to any adverse effects*'. One could only speculate what failure to comply with this instruction would mean, but it occurred to me that the *Public Interest Disclosure Act* ('Whistleblowers' Charter'), which had come into force in the UK in January 1999, should afford NRPB employees a measure of protection not hitherto available to them.

But by whom was the NRPB itself so instructed? Again one can only speculate, but it was clear that before the Government could benefit from the increased revenue generated by burgeoning Mobile Phone Market – not to mention the then impending auction of the 3G licences – the products themselves had to be seen to comply with the Safety Guidelines drawn up by the Government's own advisory body (the NRPB!) - a situation guaranteed to promote hidden (and not so hidden) agendas and vested interests of all kinds, and one that has, on occasion, invited comparison with 'the police investigating the police', particularly given that the NRPB is financed not only by the Government, but also (admittedly to a lesser extent) by very the industry whose products it is supposed to regulating!

**I thus felt obliged to make this public, and to 'blow the whistle' on the scandalous inadequacy of the NRPB Safety Guidelines governing public exposure to the pulsed microwave radiation used in Mobile Telephony, on account of their neglect of non-thermal influences to which we are vulnerable when alive.**

This I did, in no uncertain terms, firstly at a meeting in Liverpool in March 1999, convened by the City Council to discuss health implications of exposure to the emissions of Mobile Phone Base-stations, and, somewhat later, at another meeting in London in the April. One of the other speakers in Liverpool was the then head of the World Health Organisation (WHO) International Electromagnetic

Field Project. Subsequently, in order to allay any fears that my talk might have provoked, he wrote to the City Council in an attempt to undermine and distort, *via* a litany of ill-informed and biased comments, my criticism of the adequacy of existing safety guidelines, not only the NRPB's, but also those of ICNIRP, which the WHO espouses. His letter subsequently got into the hands of the Mobile Phone Companies who now use it at every possible opportunity to smear my name and discredit my work.

Somewhat later, the reason for the WHO's reaction to my criticism became apparent: it was engaged in a programme of global 'harmonisation' of exposure standards, aimed at persuading (more sensible) nations, such as Russia and China, whose Safety Standards were then a 1000 times more stringent than those in the West, to relax them in favour of the more lenient Western ones. But why, if not to expand Western market growth, should the harmonisation be towards *higher*, rather than towards lower, *safer* (and more precautionary) levels of exposure that one might reasonably have expected the WHO to support? Indeed, the WHO takes a very dim view of countries such as Italy, Luxembourg, Switzerland and parts of Belgium who have opted to reject the ICNIRP Guidelines in favour of more stringent national limits; even less favourably viewed are countries – such as France and Spain - where individual regions, and even cities - sometimes in collaboration with the Mobile Phone Operators – have set their own (more stringent) local exposure limits, such as has happened recently in Paris.

Present at the London Meeting were members of the NRPB, including its Deputy Director, who shortly afterwards wrote to the Head of the Physics Department in my university asking whether the university endorsed my work. He was politely told that it did not, but also that it was not usual for a university either to endorse or refute the research findings of a member of its academic staff, there being, after all, such a thing as academic freedom!

A little later, after the NRPB had been sent copies of some of the many letters of support that I had been writing on behalf of people threatened with the installation of a Base-station in their vicinity, my university was contacted by the Deputy Director of the NRPB a second time. For, in my letters, I had again criticised the NRPB Safety Guidelines for not affording any protection against the more subtle non-thermal effects of the radiation emitted by a Base-station. In its letter to the university, the NRPB claimed that my criticism had 'no basis in fact', and that copies of my letters would be forwarded to their solicitor in the legal section of the Department of Health. To free itself of any liability, the university then forbade me to use university-headed notepaper for any future correspondence of this nature. In addition, I was instructed to make sure that the name of the university did not appear in captions featuring in any of the numerous television interviews that I was giving around this time about Mobile Phone safety; they were particularly insistent that in any interviews that were filmed in the Physics Department, there should be no clues as to the identity of the location.

Following numerous representations from the public to the NRPB, I was invited to present my views both in person and in writing to the IEGMP in December 1999. Before commencing my presentation, I took the opportunity to blow a second whistle, drawing the attention of the Chairman, Sir William Stewart, to my experiences with the two gentlemen mentioned above, one of whom turned out to be a member of the IEGMP. My concern about the extent to which the IEGMP could really be considered as 'independent' was heightened further upon discovering that the Chairman himself was an ex-Government Chief Scientist, that another two of its members already belonged to the NRPB's Advisory Group on Non-Ionising Radiation – not to mention the fact that the NRPB itself (along with its Deputy Director) was providing the Secretariat! Not surprisingly, and particularly given the IEGMP's acknowledgment to certain people with an avowed opposition to non-thermal effects for their 'helpful advice and useful discussion', my views were cast in a less than favourable light in their final report (the so-called Stewart Report).

Undeterred, I continued - at every available opportunity - to draw attention to the total inadequacy of the NRPB and ICNIRP Guidelines, and early in 2000 was invited to write an article for the prestigious

medical journal, *The Lancet*, which was published in December that year. There, I not only elaborated further on my criticism of the purely thermal basis of the Safety Guidelines, but also commented on certain aspects of the Stewart Report, which had been published in April 2000 - in particular, on how some of its greyer areas were being exploited by the Mobile Phone Industry to further its own ends and to obscure the real issue: the Report contained something for everyone. On one hand, it claimed (Para.1.17) that:

*'The balance of evidence to date suggests that exposures to RF radiation below NRPB and ICNIRP Guidelines do not cause adverse health effects to the general population.'*

Elsewhere (Para.1.19), on the other hand, we find:

*'We conclude therefore that it is not possible at present to say that exposure to RF radiation, even at levels below national guidelines, is totally without potential adverse health effects, and that gaps in knowledge are sufficient to justify a precautionary approach.'*

In Para.1.33, we find, in connection with exposure to Base-station radiation, the following statement:

*'We conclude that the balance indicates that there is no general risk to the health of people living near base stations on the basis that exposures are expected to be small fractions of guidelines. However, there can be indirect effects on their well-being in some cases.'* [My underlining]

Elsewhere (Para.6.44), however, we read:

*'Although it seems highly unlikely that the low levels of RF radiation from base stations would have significant, direct adverse effects on health, the possibility of harm from exposures insufficient to cause important heating of tissues cannot yet be ruled out with confidence. Furthermore, the anxieties that some people feel when this uncertainty is ignored can in themselves affect their well-being.'*

Para.1.33 was probably the origin of the following statement that appeared in Para.30 of the revised version of the UK Government's Planning Policy Guidance (PPG8), which was published in August 2001:

*'In the Government's view, if a proposed mobile phone base station meets the ICNIRP guidelines for public exposure it should not be necessary for a local planning authority, in processing an application for planning permission or prior approval, to consider further the health aspects and concerns about them.'*

To be so confident that compliance with existing, purely thermally-based Safety Guidelines – be they those of the NRPB or of ICNIRP – is alone sufficient to guarantee an adequately comprehensive level of protection is appallingly irresponsible, for it effectively denies that, when alive, our sensitivity to the electromagnetic fields used in Mobile Telephony is **no** greater than when we are dead - when all that can happen to us is to get burned! When alive, however, we have an electro-chemical brain activity with which these fields can interfere in a totally *non-thermal* way, somewhat analogously to the way in which radio interference occurs.

My article in *The Lancet* article provoked a rather hostile response in certain quarters, in particular, in the report of the French Expert Group, which was published soon after, in which they even expressed surprise that a scientific journal such as *The Lancet* should have published my work in the first place!

In the meanwhile, in a Report that I was subsequently invited to write in 2001 for the Scientific and Technological Option Assessment (STOA) Programme of the EU Directorate General for Research – entitled ‘*The Physiological & Environmental Effects of Non-ionising Radiation*’ – I took the opportunity to again severely criticise the collusive view of the ‘establishment’ and the Mobile Phone Industry that existing safety guidelines afford adequate protection against exposure to the radiation used in Mobile Telephony, commenting that:

***‘Quite justifiably, the public remains sceptical of attempts by governments and industry to reassure them that all is well, particularly given the unethical way in which they often operate symbiotically so as to promote their own vested interests, usually under the brokerage of the very statutory regulatory bodies (the NRPB in the UK) whose function it supposedly is to ensure that the security of the public is not compromised by electromagnetic exposure.’***

Judging by the furore that my STOA Report provoked, it had evidently struck more than one raw nerve – not least amongst the members of COST281, a group established by the European Parliament to evaluate the ‘Potential Health Implications from Mobile Communication Systems’. Their response - which can only be described as a panic, rear-guard reactive attempt to maintain the industry-beneficial *status quo* - was published on the Internet, and, regrettably, is now being used by the (Mobile Phone Company) Appellants in Public Inquiries (into the refusal of Planning Applications for the siting of Base-stations) in an attempt to undermine the credibility of my evidence. Clearly, they hope that the verdict of such an ‘official’ body as COST, however non-independent it might be – and one has only to look at its membership to find out - is more reliable and believable than the views of an individual, however independent. It is surely no coincidence that, since the publication of my report for STOA, invitations to speak at industry-sponsored conferences on health implications of mobile telephony have ceased!

Around this time, the Physics Department in my university was preparing to be quality assessed by a national review panel, and despite the achievement of having publications in prestigious, international, peer-reviewed journals, it was decided to exclude me from the assessment exercise, on the ground that my publications were not regular physics journals, a fact that was considered a potential liability as far as the assessment exercise was concerned, particularly given the contentious nature of their contents! A more enlightened attitude would surely have been to applaud the achievement of such interdisciplinary publications in which physics is applied to an important topical problem – in this case, a public health issue - by interfacing the physics with other relevant fields, such as biology and medicine; for at present, this is the only way in which the potential danger to public health posed by Mobile Telephony can be assessed.

In the face of such treatment and marginalisation, and in view of the earlier steps by the University to distance itself from my work, I decided to take early retirement, which I did in March 2001, so as to enable me to continue my activities in a less fettered way.

It must be said that my own experience is by no means unique, for there is now an increasing number of researchers – both in universities and elsewhere - who have paid a price for ‘whistleblowing’. For example, in Germany, Dr. Lebrecht von Klitzing resigned from the University of Lübeck in March 2002, following the university’s ban on him accepting an invitation from the Bundestag to address its Environmental Committee, on the grounds that the reputation of the university might be damaged. In France, Dr. Roger Santini, following the publication, in 2001, of a Paper reporting the effects on public health of exposure to the radiation emitted by Mobile Phone Base-stations, was forbidden by the Director of his Institute to continue this line of research, despite the fact that he had worked for the preceding 22 years in the Institute on other (presumably less contentious/sensitive) areas of bioelectromagnetics. Faced with this situation, he appealed to the Minister of National Education,

and, in March 2002, appeared before the Parliamentary Office for the Evaluation of Science and Technology Choices. His address included the following extract:

*'We are witnessing today, the development of pressures aimed at discrediting, within their Institutions, certain researchers and their findings. These campaigns of moral and professional harassment are orchestrated, in particular, by certain cell-phone providers, public health bodies and elected officials.*

*Some scientists who work on the problem of the biological effects of cell-phones and relay stations have recently been made the object, following these pressures, of discriminatory measures on the part of their Institutions: firings, profession change, change of research topic, blockage of career, loss of collaborators, ban on speaking, etc.'*

Santini went on to identify some other scientists who had suffered in this way, such as Dr. Gómez-Perretta, from a hospital in Valencia, Spain, who was silenced, following a letter he sent to the President of the Medical Association of Valencia, criticising the national Spanish Medical College for its silence and inactivity in the controversy regarding Mobile Phone safety, which left the telecommunication companies to enjoy a monopoly in the debate. He went on to say:

*'The College should not run the risk of giving its absolute blessings to standards that are so questionable, without taking into account a more independent and realistic analysis (than that offered by various 'official' bodies, such as the IEGMP in the UK, or the Royal Society of Canada) of the international literature, which is opposed to the present standard; let us remember that there were once commissions that denied the dangers of tobacco, asbestos, and therapeutic X-rays'.*

Four days later, Gómez-Perretta received a letter from his hospital threatening a 'severe penalty' if he did not cease his research on electromagnetic fields, which, according to the hospital authorities, was outside his activities as Head of the Addiction Unit. He has appealed against this decision, reminding hospital authorities of the known connection between drug addiction and exposure to radio-frequency electromagnetic fields.

Perhaps the highest profile 'whistleblower' in the health debate surrounding Mobile Phones is Dr. George Carlo, who for 6 years headed the research programme of Wireless Technology Research (WTR), which was funded (to the extent of 27 million dollars) by the Mobile Phone Companies in the USA. In a letter to the Chairman and Chief Executive Officer of the AT & T Corporation, dated 7th October 1999, which he sent as his period at WTR was coming to an end, Carlo effectively 'blew the whistle' on the Mobile Phone Industry:

*Alarming indications are that some segments of the industry have ignored scientific findings suggesting potential health effects, have repeatedly and falsely claimed that wireless phones are safe for all consumers including children, and have created an illusion of responsible follow up by calling for and supporting more research.*

He went on to say:

*'I am especially concerned about what appears to be actions by a segment of the industry to conscript the FCC, the FDA and the World Health Organisation with them in following a non-effectual course that will likely result in a regulatory and consumer backlash. ....The current popular backlash we are witnessing in the United States today against the tobacco industry is derived in large part from perceived dishonesty on the part of the Industry in not being forthright about health effects. I urge you to help your industry not to repeat that mistake.'*

**In conclusion, it is gratifying to put on record that, in most cases, whatever have been their fates, 'whistleblowers' continue undeterred to proclaim their brave messages.**

*Long may continue to do so!*