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DEPARTMENT OF HEALTH

**THE SCIENTIFIC  
ADVISORY SYSTEM:  
MOBILE PHONES AND HEALTH**

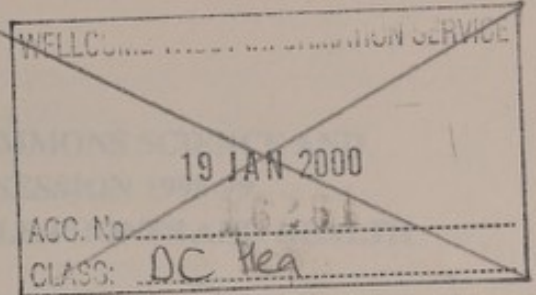
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*Presented to Parliament by the Secretary of State for Health  
by Command of Her Majesty  
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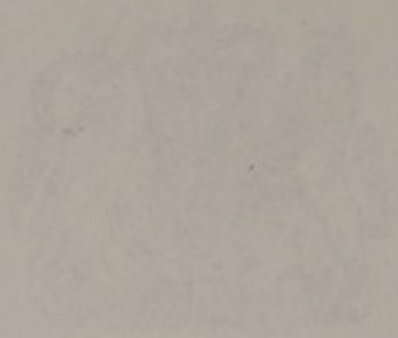
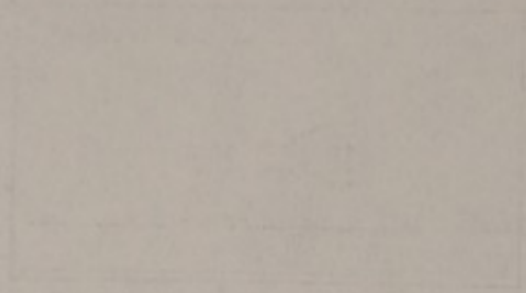


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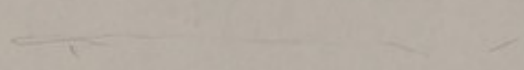
# **THE SCIENTIFIC ADVISORY SYSTEM: MOBILE PHONES AND HEALTH**

## **THE GOVERNMENT'S RESPONSE TO THE REPORT OF THE HOUSE OF COMMONS SCIENCE AND TECHNOLOGY COMMITTEE ON THE SCIENTIFIC ADVISORY SYSTEM: MOBILE PHONES AND HEALTH**

*Presented to Parliament by the Secretary of State for Health  
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DEPARTMENT OF HEALTH



THE SCIENTIFIC  
ADVISORY SYSTEM  
FOR THE PROTECTION AND HEALTH

THE GOVERNMENT IS RESPONSIBLE FOR  
REPORT OF THE SCIENTIFIC ADVISORY  
SYSTEM AND THE FOLLOWING  
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## INTRODUCTION

### THE REPORT OF THE HOUSE OF COMMONS SCIENCE AND TECHNOLOGY COMMITTEE, SESSION 1998-99, SCIENTIFIC ADVISORY SYSTEM: MOBILE PHONES AND HEALTH

1. The Government welcomes the report of the House of Commons Select Committee on Science and Technology on "The Scientific Advisory System: mobile phones and health" published on 22nd September. We note the Committee is undertaking an enquiry into the scientific advisory system through a number of case studies and that this is the second study.
2. The Government endorses the Committee's finding that mobile phone technology is delivering significant benefits to the consumer and the UK economy as a whole. The Committee's careful consideration of the scientific issues surrounding the concerns that mobile phones and their base stations may present a health hazard, has made a considerable contribution to placing such possible risks in a proper perspective.
3. The Government ensures that there is a thorough analysis of risks that might be imposed by the widespread introduction of new technology such as mobile telephony. The Chief Scientific Adviser's *Guidelines on the Use of Scientific Advice in Policy Making* have been adopted by all Departments. These set out the key principles for Government Departments to apply, particularly in cases where there is scientific uncertainty, a range of scientific opinion, or potentially significant implications for sensitive areas of public policy. These principles include the early anticipation of those issues for which scientific advice will be needed, the drawing on of a sufficiently wide range of the best scientific sources, and the early publication of data.
4. The Department of Health, the National Assembly for Wales, the Scottish Executive and the Northern Ireland Assembly are responsible for oversight of public health in England, Wales, Scotland and Northern Ireland respectively. Under the Health and Safety at Work etc. Act 1974, the Health and Safety Commission (HSC) and Executive (HSE) have responsibilities in relation to the proper control of possible health impacts of mobile phones used at work and of their base stations on people at work and members of the public. HSE does not consider that the consequences of occupational use of mobile phones differ from those of social use.
5. The regulation of the phone industry lies with DTI, which has the responsibility for licensing the network operators under the Telecommunications Act 1984, and also for the safety of consumer products. Under the General Product Safety Regulations 1994, it is an offence to supply unsafe consumer products. These regulations are enforced by local authority trading standards officers in Great Britain and environmental health officers in Northern Ireland, who have the power to remove unsafe products from sale. Safety assessments of mobile phones take microwave exposure guidelines into account.
6. The Government's principal source of scientific advice on radiation issues is the National Radiological Protection Board, (NRPB) a statutory body set up to advise on the health hazards of exposure to radiation. Its advice covers both ionising (such as x-rays) and non-ionising radiation (including ultraviolet and radiofrequency radiation). The NRPB Board is composed of independent members and has a staff of expert scientists in their field. As the Committee notes, the Board's advice takes account, not only of NRPB's internal research but also the work of other national and international organisations and NRPB assesses all relevant research findings before advising Government.
7. Current UK guidelines on limiting exposure to radiofrequency radiation used by mobile phones and their base stations are based on advice from the NRPB. These guidelines are set to prevent well-established adverse effects on health resulting from the excessive heating of tissue (thermal effects). The Government recognises these guidelines for maximum exposure and industry complies.

8. However, the Government acknowledges that there has been a range of reports suggesting other athermal effects from exposure to microwave radiation and that this has contributed to a heightened public concern about health effects from mobile phone use. The Minister for Public Health supported by DTI responded by announcing last April that she had instructed the NRPB to establish an Independent Expert Group on Mobile Phones. The Expert Group has now been set up and has met a number of times. It has advertised widely for evidence from all interested parties and will be taking evidence at open meetings around the country. It will be assessing rigorously the current state of research into the health impacts of mobile telephony and it will identify priority areas for new research, provide an independent risk assessment and advise on implications of new developments. It is due to report in April 2000.
9. The Government maintains its current view, which is supported by the Select Committee's conclusions, that the scientific evidence which has accumulated so far does not suggest that radiation arising from either mobile phones or their base stations present a health hazard if it complies with current UK exposure guidelines. The Government keeps its policies under regular review and is committed to reviewing the present situation after receiving the report from the Independent Group set up by the NRPB.
10. The Government's response to the specific recommendations in the Committee's report follows.

## **RESPONSE TO SPECIFIC RECOMMENDATIONS**

- (a) **We recommend that the Government adopt the International Commission on Non-Ionising Radiation Protection recommended guideline limits for microwave exposure as a precautionary measure. We further recommend that these guidelines be introduced quickly but with a grace period to allow network operators to achieve full compliance (paragraph 22).**
11. The way in which exposure guidelines are incorporated into regulation was described more fully in the submission of the Department of Trade and Industry. Compliance with exposure guidelines is not specified in any regulations, but would be taken into account in consideration of the General Product Safety Regulations for mobile phones and under the Health and Safety at Work Act for a mobile communications transmission installation. Government accepts the guidelines advised by NRPB and supports the NRPB's view that there is no scientific basis for exposure limits for radiofrequency radiation to be reduced to those levels proposed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). The Government keeps its policies under review and will be considering the present situation after the Independent Expert Group has reported.
12. Government notes that the basis for both the NRPB and ICNIRP guidelines is the same, in that, for RF radiation, both sets of guidelines are set solely to prevent adverse effects on health due to excessive heating of tissues. The ICNIRP guideline levels were incorporated into the EU Recommendation on guidelines for limiting exposure of the general public to electromagnetic fields. The Government supported this Recommendation as it understood the need for a uniform framework across Europe. However the EU Recommendation recognises that national governments need to take a number of other factors, as well as the indicative ICNIRP guidelines into account when proposing national levels. The NRPB have published advice to the Government on the differences between the ICNIRP exposure guidelines and those advised by the NRPB and has advised on some possible practical consequences of implementing the ICNIRP guideline levels. Government's aim is to ensure that the EU Recommendation's framework is in place. The NRPB and ICNIRP Guidelines are not

standards that can be adopted in a formal way. The NRPB Guidelines are a part of the process of assessment of the safety of mobile phones under the General Product Safety Regulations, and of mobile phone base station transmitters under the Health and Safety at Work etc. Act 1974. The EU Recommendation covers all frequencies and a large number of activities. As part of the process of implementing the Recommendation, Government will consider the implications for all these activities including mobile phones, and mobile phone base stations. Government will also be looking to the advice from the Independent Expert Group.

13. Mobile phones are international products and are likely to be manufactured to comply with the lowest national and international guidelines for exposure (so as to allow greatest flexibility for marketing). We have no reason to believe that mobile phones in use in the UK do not already comply with the ICNIRP values. We also note that exposure of the general public to microwaves from mobile phone base station transmitters in almost all circumstances is considerably inside the exposure guidelines of both the NRPB and ICNIRP. In practice, in almost all circumstances, advocating compliance with ICNIRP rather than the NRPB guidelines would not result in reduced exposure for the general public. It is the area directly in front of the antennas on the base stations and at the height of the antennas where exposure might approach either guideline level. At this height the general public is unlikely to have physical access to the area concerned. If ICNIRP guidelines were to be adopted the existing exclusion zones currently of 1-2 metres at the level with the antennas would mostly require extension by a few metres.
  - (b) **We reject the main criticisms of the National Radiological Protection Board. Whilst the National Radiological Protection Board's guidelines for maximum microwave exposures are significantly higher than those found in some other countries, their scientific justification is largely unchallenged. Other bodies including the International Commission on Non-Ionising Radiation Protection, a European Expert Group and the World Health Organisation, agree with the National Radiological Protection Board's assessment that there is no scientific basis for exposure limits to avoid potential harm from athermal effects of microwaves. (paragraph 28)**
14. The Government welcomes the Committee's endorsement of the quality of the advice from the NRPB. The Government maintains its confidence in the high quality and impartiality of the advice it receives from the NRPB. It notes that the NRPB's advice is consistent with the views of international expert bodies such as ICNIRP and WHO and that the NRPB's view that there is no scientific basis for exposure limits other than the well established thermal effects from exposure to radiofrequency radiation, is shared by these bodies.
  - (c) **We recommend that the National Radiological Protection Board regularly reviews the scientific evidence for athermal effects (paragraph 29).**
15. The NRPB will continue to monitor and review relevant scientific evidence on the effects of exposure to radiofrequency radiation on health. This includes any scientific evidence for effects caused other than by excessive heating of tissue. It will carry this out through the efforts of its own expert staff and through its independent Advisory Group on Non-ionising Radiation.
  - (d) **The establishment of the Expert Group on Mobile Phones is a highly appropriate response from Government but we view it as a temporary measure. In the long term, Government and the National Radiological Protection Board must ensure that the Advisory Group on Non-Ionising Radiation has sufficient resources to discharge its duties effectively and in a timely manner. We regard this as a responsible recognition by Government that constant vigilance is required in a rapidly changing field (paragraph 31).**



16. The Government supports the work of the NRPB's independent Advisory Group on Non-ionising Radiation and will continue to ensure that it has sufficient resources to discharge its scientific duties effectively. The remit of the AGNIR is to provide advice based solely on considering the scientific evidence. The Government further recognised the need to establish an independent expert group who would consider the evidence in an area of uncertainty and provide advice on the shortest time scale feasible. This required setting up the Independent Expert Group on Mobile Phones who will consider the science together with the social and economic aspects of the problem and who will follow an intense programme of reviews and wide consultation in order to produce a comprehensive report by April 2000. The AGNIR will shortly be producing a report on cancer and extremely low frequency electromagnetic fields (e.g. power lines) and will continue to keep developments in the radiofrequency area under close scrutiny after the Independent Expert Group on Mobile Phones has published its findings.
- (e) **We recommend that, while they should not be in the majority on the proposed Expert Group, if industrial representatives have useful, relevant expertise, they should be included (paragraph 32).**
17. The membership of the Independent Expert Group was considered very carefully and the NRPB Chairman and the Chairman of the Expert Group deemed the independence of the Group to be a high priority and that the membership of the group should demonstrate an open-minded approach. However, the Chairmen recognise the need to have comprehensive expertise available to the Group and have appointed an additional member with expertise in the mobile communications industry. This new member does not represent industry and is independent of it. In addition industry will have full access to the Group for both written and oral evidence on the same basis as any other interested party.
- (f) **We recommend that there should be at least two lay members of the Expert Group as recommended in our previous report (paragraph 33).**
18. The Government recognises the need for an appropriate level of lay representation on these committees. At the time of publication of the Scientific and Technology Committee's report, the membership of the working group was still being completed and the Chairman was in the process of identifying a further lay member who has now been appointed. However, we are not convinced that requiring all committees to include a certain percentage of lay members is a workable solution. Imposing on each of these committees a requirement to have a proportion of the membership from one particular source might conflict with the general principle that all appointments should be made on merit. The Government has therefore concluded that it should be for Ministers to decide the most appropriate balance in each case.
- (g) **Greater clarity in the role of lay members on advisory bodies and working groups is required. We recommend that their role be clearly set out, in advance of appointment, in terms of bringing alternative perspectives to bear and holding up scientific assumptions to proper scrutiny. To perform effectively lay members may need some specialist knowledge. The rationale for their appointment must be made clear (paragraph 34).**
19. The Government welcomes the Committee's comments about the role of lay members on advisory bodies. We believe that lay members have an important role to play in delivering "questioning review". Guidelines from the Government's Chief Scientific Adviser about building science into policy, proposed that experts from other, not necessarily scientific, disciplines should be part of any consultation process. This would help to ensure that evidence would be subjected to a sufficiently rigorous review from a variety of standpoints. They do, however need to be able to make a worthwhile contribution to the work of the group and be made fully aware of what will be expected of them in the process. Lay members need

to be able to ask the kind of questions which might not occur to a specialist in the field. Bodies should spell out all the roles and responsibilities of members (for example to take into account all relevant advice in drawing up advice) as well as the standards expected of them.

- (h) **We agree that there is a “need to confirm or deny the work on microwave-induced DNA fragmentation”. We note with approval that industry is co-operating with the World Health Organisation and the European Union’s fifth framework programme to determine priorities for a collaborative research programme to examine athermal effects of non-ionising radiation and endorse the need for this (paragraph 35).**
20. The reported effects of low level microwave exposure on DNA fragmentation are highly controversial within the scientific community. These effects have not been replicated by other laboratories and are inconsistent with the results of many studies assessing the genotoxic potential of microwaves. The Independent Expert Group is expected to consider and evaluate these data.
21. In 1996, the World Health Organisation’s EMF project was set up and produced an agenda for research into health effects from EMF exposure. This included microwave exposure. Also in 1996 the European Commission set up an Expert Group to draw up a “blueprint for research” into possible health effects relating to the use of mobile telephony. They recommended detailed programmes of research which fitted into the WHO research agenda. The long period of inactivity between the European Commission Expert Group report on mobile phones and health in 1996 and the actual call for proposals this year, has led to unrealistic expectations from Framework Programme V (FPV) activity. The results of the evaluation of research projects in mobile communications under the FPV Quality of Life Programme is accordingly disappointing to the research community in this subject and the mobile industry. Some important proposals which meet the WHO work programme criteria in epidemiology and in vivo carcinogenicity are being supported, but other proposals in key areas such as in vitro experimentation and in human studies e.g. memory loss, sleep disruption, have not currently been supported. We accept there are constraints on the budget available within this Programme but believe the EU funding mechanism which ensures independence of research and where the best laboratories in Europe can collaborate in undertaking this work, to be the optimum way forward. The UK has ensured that the EU FPV Programme will allow for consideration of support for further work in this subject in future years, despite the advice of the Programme independent advisory group and the Commission. We will maintain pressure on the Commission to fund more work in this field sooner rather than later.
- (i) **We agree with the Royal Society of Canada that the evidence for neurological problems reportedly caused by mobile phones, including symptoms such as headache, nausea, tiredness, sleep problems and memory loss, is unclear but there is sufficient anecdotal evidence and uncertainty to justify further research (paragraph 36).**
22. The Government notes the Committee’s comments and this evidence will be considered by the Independent Expert Group on Mobile Phones in its deliberations and the Group will advise Government on further research needs.
- (j) **We believe that the level of publicly funded research into the effects of microwave emissions falls short of an adequate programme into an area where public health implications should be regularly reviewed. We recommend that the Government ensures that a higher priority is given to a research programme into the health impacts of mobile phones. The public health aspects of new technologies should be incorporated into the Foresight Programme (paragraph 37).**

- (k) **It is essential that there is an independent and appropriately-funded research programme which is seen to be objective and which is seen not to be directed by commercial interests, even if industry makes a contribution, to the funding (paragraph 39).**
23. The gaps in the EU supported research provide further impetus to the need for work to be undertaken in the UK.
24. Government has held discussions with industry about funding a collaborative UK based research programme to which public funds could be allocated. Our initial view is that the existing funding regimes would be appropriate and industry has agreed, in principle, to support further research in the UK. It has also been agreed that any research undertaken must be independent and scientifically rigorous. Research should meet the requirements suggested by the World Health Organisation, and follow its criteria for good laboratory practice. Industry is also willing to contribute engineering expertise, particularly in dosimetry. Appropriate mechanisms for channelling industry support for research, so that it does not prejudice the independence of the research will need to be considered and agreed. Proposals in this area of research will also be considered through existing mechanisms.
25. The Government welcomes the inclusion of Foresight in the Committee's recommendations. Foresight sectoral Panels are finalising their priorities for publication and discussion, and the Foresight Healthcare Panel is planning to establish nine Task Forces addressing key issues. One of these Task Forces will be looking at the influence on physical and mental health and health care provision, of external influences, all of which encompass the use and exploitation of new technologies. Input will be sought from the Foresight Information Communications and Media Panel. Emerging outputs will be placed on the Foresight Knowledge pool (on the internet) in the New Year, with the Foresight Healthcare Panel report scheduled to be published in November 2000.
- (l) **We recommend that the industry and the National Radiological Protection Board explore ways in which the design of mobile phones might limit personal exposure to radiation as a means of assisting consumer choice (paragraph 40).**
26. It is extremely important that standard technical specifications are developed which allow manufacturers, regulators and independent test houses to assess performance and radiation emissions from telecommunications equipment such that different designs may be compared, thus improving consumer choice. This work is under way through the European Committee for Electrotechnical Standardization (CENELEC) with active participation by UK technical experts. The Government provides both technical and financial support to the standards development process through the British Standards Institution. It is not appropriate for Government or NRPB to be directly involved in commercial activity such as the design of mobile telephone handsets.
27. There has been considerable research effort devoted to antenna design, as a more efficient antenna will improve the performance of a mobile device e.g. in improved battery performance. As any energy absorbed by the body reduces the efficiency of the device, improved antenna design will also reduce exposure. The industry has supported work in antenna design for many years. Research in more efficient antenna design is already being supported by the UK Mobile Virtual Centre of Excellence (VCE), a collaborative research programme between industry and some major UK Universities, which is being supported by Technology Foresight.

## CONCLUSION

28. The Government thanks the Science and Technology Committee for its opportune report on mobile phones and health. The considerable growth of the industry and its benefits for the UK consumer has also raised the profile of the concerns about any possible health effects. Government recognised these issues and has responded by commissioning an in-depth review. It is also addressing the need for adequate research to address questions of uncertainty that may be highlighted as a result of the review and the Government will be assessing the need for further action after it has received the advice from the Independent Expert Group.





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