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Health Protection Agency

**Centre for Radiation,
Chemical and
Environmental Hazards**

**Radiation Protection
Division**

Letter to Dr Howard Stoate,
Parliamentary Commission on childhood Leukaemia and EMF
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Dear Dr Stoate,

Parliamentary Commission on childhood Leukaemia and EMF

Thank you for sending us the background papers to be used by your Parliamentary Commission. The short time-scale means that we have only been able to produce a few comments on your work and background papers.

There is overlap between the work of your commission and that of SAGE. However SAGE has not explicitly carried out a review of the scientific evidence linking EMF exposure with an increased risk of childhood cancer, which your work is aiming to do. I am sure you know that the Health Protection Agency (and formerly the National Radiological Protection Board, NRPB) has statutory duties to advise on scientific aspects of radiological protection throughout the UK. We have used an independent expert advisory group on non-ionising radiation (AGNIR) to conduct a number of scientific reviews in this area, and from that scientific evidence, developed exposure guidelines for the UK.^(1,2,3) I enclose the terms of reference, membership and publication list of AGNIR. At the time of preparation of the last AGNIR review of the subject AGNIR was chaired by Sir Richard Doll. The Group continues to keep a watching brief on the subject.

Key conclusion here from AGNIR 2001 Para 15 page 164

Laboratory experiments have provided no good evidence that extremely low frequency electromagnetic fields are capable of producing cancer, nor do human epidemiological studies suggest that they cause cancer in general. There is, however, some epidemiological evidence that prolonged exposure to higher levels of power frequency magnetic fields is associated with a small risk of leukaemia in children. In practice, such levels of exposure are seldom encountered by the general public in the UK. In the absence of clear evidence of a carcinogenic effect in adults, or of a plausible explanation from experiments on animals or isolated cells, the epidemiological evidence is currently not strong enough to justify a firm conclusion that such fields cause leukaemia in children. Unless, however, further research indicates that the finding is due to chance or some currently unrecognised artefact, the possibility remains that intense and prolonged exposures to magnetic fields can increase the risk of leukaemia in children.

Some of the material in your briefing pack, especially a summary of the legal position and public opinion survey is a welcome addition to the knowledge in this area. However these are not our areas of expertise so we have no comments at this time. Our epidemiologists have been able to review your epidemiological briefing report "Do Electric and Magnetic Fields Cause Childhood Leukaemia? A Review

of the Scientific Evidence”, prepared for “Children with Leukaemia” by A Morgan and K Martin. Herewith are their comments.

In addition to the review by AGNIR, the topic of electromagnetic fields (EMFs) and childhood leukaemia has been considered in many other epidemiological and biological studies in recent years and also has been the subject of reviews by various national and international bodies. such as the International Commission on Non-Ionizing Radiation Protection and the International Agency for Research on Cancer. These reviews – which have been published in the peer-reviewed literature or under the auspices of the advisory groups concerned - have addressed similar issues to those considered in the Childhood with Leukaemia report, but usually in greater depth. This report does address some studies that were published after the above reviews – for example, the study published in 2005 by Draper *et al*, upon which HPA commented at the time of publication⁽⁴⁾. Conversely, some work has appeared since this report was prepared; for example, the recent document by AGNIR on power frequency EMFs, melatonin and the risk of breast cancer⁽⁵⁾.

Overall, this new report adds little to the information on childhood leukaemia and EMFs that has already been considered by various review groups.

Thank you for sending us notification of your work,

Best wishes

Yours sincerely,
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1) ELF Electromagnetic Fields and the Risk of Cancer: Report of an Advisory Group on Non-Ionising Radiation. Documents of the NRPB: Volume 12, No. 1 (2001)

http://www.hpa.org.uk/radiation/publications/documents_of_nrp/abstracts/absd12-1.htm

2) Review of the Scientific Evidence for Limiting Exposure to Electromagnetic Fields (0–300 GHz). Documents of the NRPB: Volume 15, No. 3 (2004)

http://www.hpa.org.uk/radiation/publications/documents_of_nrp/abstracts/absd15-3.htm

3) Advice on Limiting Exposure to Electromagnetic Fields (0–300 GHz). Documents of the NRPB: Volume 15, No. 2 (2004)

http://www.hpa.org.uk/radiation/publications/documents_of_nrp/abstracts/absd15-2.htm

4) http://www.hpa.org.uk/hpa/news/articles/press_releases/2005/050603_childhood_cancer_voltage.htm)

5) <http://www.hpa.org.uk/publications/2006/rce1/default.htm>

Also appended, terms of reference and publication list of AGNIR

Advisory Group on Non-Ionising Radiation (AGNIR)

Establishment and terms of reference

The Advisory Group on Non-ionising Radiation (AGNIR) was set up by the Director of the NRPB in 1990. The terms of reference were:

to review work on the biological effects of non-ionising radiation relevant to human health and to advise on research priorities.

The AGNIR was reconstituted in 1999 as an independent advisory group and reported directly to the board of the NRPB; since April 2005 it reports to the sub-committee of the board of the HPA that deals with radiation, chemical and environmental hazards. In addition to the work of the Advisory Group, subgroups address specific issues.

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he Advisory Group has issued ten major reports in the *Documents of the NRPB*, a number of statements, and one report in the *Documents of the Health Protection Agency*. These publications, listed in the [bibliography](#), have mainly covered reviews of experimental and epidemiological studies, together with exposure data relevant to assessing possible health effects from exposures to electromagnetic fields (EMFs) and ultraviolet radiation (UVR). They have been a valuable input to NRPB advice and have been used in the development of exposure guidelines as well as being widely circulated and used by Government and the devolved assemblies.

The ongoing programme of work was agreed by the board of the NRPB at its meeting in March 2005 and is summarised below.

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HPA (2006). [Power frequency electromagnetic fields, melatonin and the risk of breast cancer. Report of an independent Advisory Group on Non-ionising Radiation.](#) *Doc HPA*, RCE-1.