

My final comment relates to the use of the precautionary principle; should it be adopted if it causes more harm than good? The precautionary approach is used precisely because there is no generally agreed scientific evidence of an adverse effect. However, the adoption of this approach is not without its own consequences. A balance should be sought to weigh the uncertainty of the health risk against the effects of introducing a precautionary approach. For example if an exclusion zone is adopted near power lines for new houses then existing houses near power lines will be at best devalued or worse become worthless. The stress to the thousands of people affected by this will inevitably lead to illness. If the overall affect of introducing the precautionary approach is to increase adverse health effects should it be adopted? The decision lies on the balance between a possible health risk of EMF and a known health risk of stress.

I note that the charity Children with Leukaemia has provided the Commission with information and support. The Charity makes no secret of its aims and obviously has its own viewpoint and agenda. Given the amount of potential literature available, to come to your own independent view of the scientific literature will require a considerable effort, I wish you success.

Yours sincerely



Dr L A Coulton  
Senior Research Scientist



The  
University  
Of  
Sheffield.

19 May 2006

Dr L A Coulton

Division of Clinical Sciences (South)  
Academic Unit of Bone Biology  
Medical School  
Beech Hill Road  
Sheffield, S10 2RX

**Telephone:** +44 (0) 114 271 2434

**Email:** l.coulton@sheffield.ac.uk

Dear Dr Stoate.

Based on my 25 years experience of research into biological effects of electromagnetic fields (EMF) I wish to bring to your attention some observations that you may wish to bear in mind when considering an overview of the scientific literature.

I realise that arriving at a meaningful overview is a difficult task but I believe how you undertake the exercise is particularly important.

1. To get a full and unbiased picture you would need to refer back to the original papers; however there are several thousand papers published over the last 30 years. A daunting task if undertaken thoroughly.
2. Alternatively you could rely on reviews; there have been national as well as international reviews published, some from eminent bodies and independent scientists. However, in general these find little convincing evidence of adverse health effects.
3. The third and potentially most misleading option is to rely on a subset of papers or reviews as these can be selected from the multitude of papers to support any chosen hypothesis.

The major problem of the literature on biological effects of EMF is that despite the large total number of published papers very few of the claimed effects have been independently verified. Indeed the EMF Biological Research Trust (a UK based charity) has funded many replication studies since its inception in the early 1990s but to date none have confirmed the original claims. A similar lack of effects was found in a large American programme (Electric and Magnetic Fields (EMF) Research and Public Information Dissemination (RAPID) Program) that tried to replicate some of the apparently more robust claims. Without this independent verification the findings should be interpreted with the greatest caution. All too often scare stories are published, particularly in the newspapers, which prove to be unrepeatable. This is a theme explored in a recent Royal Society report (I enclose a BBC news summary for information). This lack of independent verification can be interpreted in two ways; the effect is not real or the effect is small and hence difficult to demonstrate. Disappointingly a review of the literature does not reveal a consistent pattern or trend; for every claimed effect there are studies that show the reverse. Even a simple but crude analysis of the number of papers showing adverse effects weighed against those showing no effects is fraught with problems as there is a bias in the science journals against negative studies.

Many of the peer-reviewed published papers have potential flaws or weaknesses. For instance the study undertaken by Children with Leukaemia on 'The public's view on an appropriate response etc' has a major weakness. Quite rightly most people would be prepared to spend a little extra each month for their electricity if there was the possibility that in doing so they may save the life of even just one child. However, what the participants in the study were not given was an alternative way in which their additional money could save lives and how many lives would be saved. How would they have responded if they had been given the option of spending the money on the possibility (but not certainty) of saving a child's life or building and equipping a new hospital with the potential to save many lives?