

# WHO RESEARCH AGENDA FOR RADIOFREQUENCY FIELDS



**World Health  
Organization**

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# LIST OF ABBREVIATIONS

<b>AFSSET</b>	Agence française de sécurité sanitaire de l'environnement et du travail
<b>EEG</b>	Electroencephalography
<b>EMC</b>	Electromagnetic compatibility
<b>EMF</b>	Electromagnetic field
<b>GSM</b>	Global System for Mobile Communications
<b>HSP</b>	Heat shock protein
<b>ICNIRP</b>	International Commission on Non-Ionizing Radiation Protection
<b>JEM</b>	Job exposure matrix
<b>NIEHS</b>	National Institute of Environmental Health Sciences (USA)
<b>NTP</b>	National Toxicology Program (USA)
<b>NRC</b>	National Research Council of the National Academies (USA)
<b>RF</b>	Radiofrequency
<b>SAR</b>	Specific absorption rate
<b>WHO</b>	World Health Organization
<b>WLAN</b>	Wireless local area network

# 1. INTRODUCTION

*Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO Constitution, 1948)*

Telecommunication technologies based on radiofrequency (RF) transmission, such as radio and television, have been in widespread use for many decades. However, there are numerous new applications for the broadcast and reception of RF waves and the use of RF devices such as mobile phones is now ubiquitous. The attendant increased public exposure to RF fields has made its effects on human health a topic of concern for scientists and the general public.

To respond to these concerns, an important research effort has been mounted over the past decade and many specific questions about potential health effects of RF fields have already been investigated by scientists around the world. Nonetheless, several areas still warrant further investigation and the rapid evolution of technology in this field is raising new questions.

Social concern has accrued over the years and is influencing risk management at national and local levels and public acceptance of scientific health risk assessments. Risk management is built on evidence stemming from both scientific knowledge and insights from social studies that investigate this concern. Therefore, this document identifies specific research needs in both basic science relevant to health risk assessment and social science areas pertaining to public concern and risk communication, highlighting their importance in meeting public health needs.

## Background

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Understanding the health impact of electromagnetic fields (EMFs) falls within the mandate of the World Health Organization (WHO) – in the area of environmental health. WHO aims to help Member States achieve safe, sustainable and health-enhancing human environments and protect populations from biological, chemical and physical hazards. In this context, WHO established the International EMF Project in 1996 in response to general concern over potential health effects of widespread EMF exposure.

One objective of the International EMF Project is to encourage research to study the effects of EMF on humans. This is in line with one of the six core functions of WHO, to: “shape the research agenda, and stimulate the generation, dissemination and application of valuable knowledge”. WHO’s convening power provides a unique opportunity to bring together experts to identify knowledge gaps and information that are essential for the development of evidence-based public health guidance.

From inception, the International EMF Project has worked to identify knowledge gaps where further research could improve health risk assessments and to present a focused research programme to potential funding agencies. In 1997, it developed a research agenda in order to facilitate and coordinate research worldwide on the possible adverse health effects of EMFs. In subsequent years, the Research Agenda for Radiofrequency Fields has undergone periodic review and refinement. The last major update was undertaken with the input of an ad hoc committee of invited scientific experts and published in 2006 (WHO, 2006).

## Impact

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Previous Research Agendas for Radiofrequency Fields have been instrumental in assisting countries to develop national funding priorities in this area. This publication aims to be similarly useful for many such programmes currently under review. An update was deemed necessary as a large number of the study topics highlighted in the 2006 edition have been undertaken and new evidence published. To this end, an ad hoc committee of scientific experts met in Geneva in February 2010 to develop this Research Agenda, superseding the 2006 publication.

## Guiding principles

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WHO encourages the conduct of science that complies with existing standards for best practices in research, including those related to ethics (CIOMS, 2002; WMA

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