PROGRESS REPORT

ELF Fields

Environmental Health Criteria

Emilie van Deventer

World Health Organization

Geneva, Switzerland
PROGRESS REPORT

Structure:

- Background to WHO Environmental Health Criteria
- Existing and proposed EHCs on EMF
- The EHC Process
- Progress with the Draft
- Current timetable
WHO Environmental Health Criteria

**Background:**

- **Original impetus:** World Health Assembly resolutions and recommendations of the 1972 UN Conference on the Human Environment

- **Subsequently:** became an integral part of the International Programme on Chemical Safety, in which WHO, UNEP, and others participate

- **Now:** WHO EHC monographs widely recognised and used throughout the world
WHO EHC REPORTS

Provide critical reviews of the effect on human health and the environment of chemicals and physical and biological agents

Key Components:

- Critical Review of Relevant Studies
- Health Hazard Assessment
- Recommendations for Further Study
WHO Environmental Health Criteria

Scope:

- To provide critical reviews on the health effects of ELF EMF on humans
- To assist national and international authorities in making risk assessment and risk management decisions
- To provide scientific basis for developing standards
Existing WHO EMF EHCs

- EHC 16 Radiofrequency and microwaves (1981)
- EHC 35 Extremely low frequency (ELF) fields (1984)
- EHC 69 Magnetic fields (1987)
- EHC 137 Electromagnetic fields (300 Hz-300 GHz) (1993)
## Proposed new EMF EHCs

<table>
<thead>
<tr>
<th>Static</th>
<th>ELF ( &lt; 100kHz)</th>
<th>RF (100 kHz-300 GHz)</th>
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</table>

![Static](image1.png)

![ELF](image2.png)

![RF](image3.png)
EMF EHC PROCESS

Comprises the following:

- EMF Carcinogenicity Evaluation  
  IARC
- Review of Physical, Experimental,  
  Clinical and Epidemiological EMF Data  
  ICNIRP
- Chapter Development and Peer Review  
  External experts
- Compilation of draft EHC Reports  
  WHO Editorial Group
- Final report  
  WHO Task Group
ELF FIELDS EHC


- ICNIRP Review: Exposure to Static and Low Frequency EMFs, Biological Effects and Health Consequences (0-100 kHz) (2003)

- Majority of studies on 50-60 Hz magnetic field exposure
- Some on 50-60 Hz electric field exposure
- A few on VLF (3-30 kHz) switched gradient magnetic fields for MRI and VDU
WHO ELF Fields Working Groups

- Neurodegenerative Disorders, WHO HQ, Geneva, 12-13 December 2002
- Cardiovascular Disorders, Stockholm, Sweden, 27-28 May 2003
- Childhood Leukaemia, NIES, Japan, 16-18 September 2003
- Protective Measures, NIEHS, USA, 9-11 February 2005
WHO ELF Fields Editorial Group

- Leeka Kheifets, UCLA, California, USA
- Rick Saunders, HPA, Didcot, UK
- Chris Portier, NIEHS, North Carolina, USA
- Eric van Rongen, Health Council, Netherlands
- Mike Repacholi, WHO, Geneva
- Emilie van Deventer, WHO, Geneva
- Chiyoji Ohkubo, WHO, Geneva
Task Group

- Membership approved by Assistant Director General (Sustainable Development and Healthy Environments)

- Considerations: speciality, range of views, gender and geographical distribution

- Representatives of Working Groups and observers

- 5-day meeting to review, revise and finalise EHC Monograph and policy recommendations
Table of Contents:
1. Summary and recommendations (*to be written*)
2. Sources, measurements and exposures
3. Internal dosimetry
4. Biophysical mechanisms
5. Neurobehavioural responses
6. Neuroendocrine system
7. Neurodegenerative disorders
8. Cardiovascular disorders
9. Immune system and haematology
10. Reproduction and development
11. Cancer
12. Health risk assessment
13. Protective measures
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## Sources, exposures and exposure assessment
- Childhood leukaemia
- Adult cancers
- Animal studies
- Dose-response analysis
- In vitro studies

## Nervous system, behaviour and disorders

## Options for protection
Key Topic Areas

Sources, exposures and exposure assessment

Nervous system, behaviour and disorders
- Childhood leukaemia
- Adult cancers
- Animal studies
- Dose-response analysis
- In vitro studies

Options for protection
Key Outputs:
1. Summary
2. Recommendations for Further Research
3. Health Risk Assessment
4. Advice to Governments
Draft ELF Field EHC Status

Current status:

• All reviews completed
• Summaries written
• Draft Environmental Health Criteria sent out for external review (May 2005)
Timeline

- External review
  End of June 2005

- Final Draft → Task Group
  August 2005

- Task Group
  October 3-7 2005

- Expected Publication
  Early 2006
World Health Organization

Electromagnetic fields (EMF)

Extremely low frequency fields (ELF) Environmental Health Criteria

NEW! Extremely low frequency fields (ELF) EHC
DRAFT FOR REVIEW - NOT FOR QUOTATION

WHO would like your comments on the draft ELF EHC. Please send your comments to emfproject@who.int by 30 June 2005.

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- Chapter 3: Internal dosimetry [pdf 3.04Mb]
- Chapter 4: Biophysical mechanisms [pdf 246kb]
- Chapter 5: Neurobehavioural responses [pdf 342kb]
- Chapter 6: Environmental impacts [pdf 206kb]