Potential Health Implications from Mobile Communication Systems

Summary: COST281 project: Mobile & Children

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Agenda
- Goal of short term mission project
- 6 working groups
- Methodology of the project
- Results collected
- Conclusions

Start & objectives of project
- Start of project
  - In Rome on May 5, 2002 a short term mission (STM) related to Mobile Phones and Children was defined
  - The STM covered all EMF aspects of the use of mobile phones by children (from SAR to risk communication)
- Objectives
  - To collect publications related to mobile communication and children and to review the literature
  - To determine and to report the areas where scientific knowledge is missing
  - To identify potential need for additional research in this area

Working groups
- Six working groups have been defined:
  - WG 1: Anatomical properties and biophysical and biochemical mechanisms in children
  - WG 2: Dielectric properties
  - WG 3: Dosimetry
  - WG 4: Biological Studies
  - WG 5: Patterns of usage of mobile phones
  - WG 6: Risk communication to children

Project Methodology
- Registration
  - Application form for registration (asking for competences and interest in working group)
- E-mail reflector
  - To discuss the different areas
  - For announcements of chairman
- Website
  - Updates of report chapters, literature, public reports are published on private entry of website
  - Password protected: to avoid distribution of draft chapters and to give added value to participants

Result
- Work was proceeding slowly (logical due to the voluntary character of STM)
- Work has been limited to collection of papers and reports
- Presentation at three conferences
  - BEMS, 22-27 June 2003, Maui, USA
  - Workshop Mobile Health & Environment, 16-17 March 2004, London, UK
  - WHO workshop, 9-10 June 2004, Istanbul, Turkey
WG 1: Anatomical, biophysical and biochemical developments

- Extensive report “Growth in infancy and childhood with tables”
- Conclusions
  - Growth of head and brains is mainly in first 5 years
  - From 5 year on, growth is slowing down but continues growing fast during first decade with increasing calcification (decreasing conductivity). From 10 year on a very slow growth is observed.
  - Myelination is in advanced state in all subcortical areas at the end of the year and slowly continues in adulthood.
- Open areas
  - Direct impact of electromagnetic fields on development itself.
**WG 5: Mobile usage patterns**

**Results**
- Different reports on mobile usage patterns are collected (recent ones must be added).
- Differences in service use (telephone, SMS, MMS, mobile internet, game playing) between children and adults have been clearly identified.
- Number of calls per day (NC) and duration of calls (DC) can lead to numbers for specific absorption per call (SAC) and specific absorption per day (SAD).

**Open areas**
- Distribution of NC and DC as a function of age is not available and will be very much time and culture dependent.
- If SAC and SAD are available: Is there a relation to a potential health effect?

**WG 6: Risk Communication**

**Results**
- Almost nothing substantive is available with regard to EMF risk communication to adolescents and children.
- Links to primers, publications, reports and websites are available in the draft report.

**Open areas**
- Primers on health communications need to be converted in material suitable for different age groups.
- An EMF risk communication strategy and material for children and adolescents are missing and need to be further developed.

**Conclusions**

- Papers and reports have been collected in COST 281 short term mission project on Mobile & Children.
- The project has been structured with 6 working groups covering all aspects with respect to Mobile phones and Children.
- Open areas for further investigation have been identified.
- Continuation of the project?
  - Further collection of papers and reports.
  - Meeting with experts per working group to update information.
  - Co-ordination with WHO-project on EMF & children.

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- **WG 1:** Anderson Vitas (TVNZ Australia), Fröhlich Jürg (IT’IS, Switzerland), Johnston Sheila (Neuroscience consultant, UK), Kuster Niels (IT’IS, Switzerland).
- **WG 2:** Faraone Antonio (Motorola, USA), Fröhlich Jürg (IT’IS, Switzerland), Gabriel Camelia (MCL, UK), Kuster Niels (IT’IS, Switzerland).
- **WG 3:** Faraone Antonio (Motorola, USA), Fröhlich Jürg (IT’IS, Switzerland), Kuster Niels (IT’IS, Switzerland), Konstantinos Nikif (University of Athens, Greece), Martinez Antonio (University of Carthagene, Spain), Trzaska Hubert (University of Wroclaw, Poland).
- **WG 4:** Elder Joe (Motorola, USA), Kuster Niels (IT’IS, Switzerland), Leszczynski Dariusz (STUK, Finland), Samaras Theodoros (University of Thessaloniki, Greece), Verschuere Luc (Vito, Belgium).
- **WG 5:** Kuster Niels (IT’IS, Switzerland), Proprera Mathieu (RIVM, The Netherlands), Samaras Theodoros (University of Thessaloniki, Greece), Martinez Antonio (University of Carthagene, Spain), Wagenaar Michelle (Phone Vision International, The Netherlands).
- **WG 6:** Dürrenberger Gregor (Swiss Research Foundation on Mobile Communication, Switzerland), Kuster Niels (IT’IS, Switzerland), Wagenaar Michelle (Phone Vision International, The Netherlands), Wiedemann Peter (Research Centre Juelich, Germany).
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2004/10/05 | Presentation Thurousey |

**WHO Workshop in Prague, Czech Republic on October 25-27, 2004**

"WHO workshop on Electrical Hypersensitivity"

Sensitivity to EMF has been given the generic name "Electromagnetic Hypersensitivity" or EHS. It comprises nervous system symptoms like headache, fatigue, stress, sleep disturbances, skin symptoms like pricking, burning sensations and rashes, pain and aches in muscles and many other health problems. Whatever its cause, EHS is a real and sometimes disabling problem for the affected persons, while the level of EMF in their environment is usually no greater than is encountered in normal living environments. The exposures are generally several orders of magnitude under the limits in internationally accepted standards. The aim of the conference is to review current state of knowledge and opinions of the conference participants and propose ways forward on this issue.

Deadline for Abstracts and Registration: August 31, 2004

For comprehensive information and online registration please visit the WHO Conference Website.

- **July 27th, 2004:**
  Joint workshop IEEE, ICES/ COST 281 on September 22nd - 24th, 2004:
  "Thermal Physiology Workshop"
  The primary goal of the workshop is to develop appropriate techniques for predicting the thermophysiological responses of human beings who are exposed to RF/MW fields at specific frequencies, field strengths, and field characteristics and to validate some predictions with existing human exposure data. A primary focus on RF/MW bieffects, their dosimetry and prediction through modeling, would provide an enhancement of our capability to set science-based safety standards for human exposure to electromagnetic fields.
  Updated: You will find updated information, agenda and registration form [here](#).

- **July 19th, 2004:**
  Workshop in Paris, France on September 20-21, 2004
  "Workshop on RF Exposure assessment"
  Wireless systems and cellular networks in particular have been extensively deployed. As a consequence the Radio Frequency exposure assessment has been intensively studied in recent years. Efforts have been carried out in line with the analysis of the compliance of such systems to the International Guidelines in order to design the exposure and to ensure that exposure levels are controlled, for general public, and also in occupational areas, the development of measurement systems and protocols are intensively studied. The use of numerical technique has been developed and they are used to analyze the influence on the exposure of the operating and the position of the body.
  Presentations of the speakers you will find [here](#). NEW: 11-12.2004 Minutes of the MCM you will find [here](#).

- **July 22nd, 2004:**
  Workshop in Helsinki, Finland on April 28-29, 2004
  "Influence of RF Fields on the Expression of Stress Proteins"
  The rapporteur report is now available under the "Document section" of this website.

- **May 19th, 2004:**
  Workshop Presentations
Abstract presentation

**Summary of COST281 project on “Mobile Communications and Children”**

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A subproject “Mobile Communications and Children” in the framework of the European COST281 project “Potential Health Implications from Mobile Communication Systems” is presented. The importance of this topic has been proven by the organisation of a workshop on Sensitivity of Children to Electromagnetic Fields by the World Health Organization on 9-10 June 2004 in Istanbul (Turkey).

The following areas where children can differ from adults with respect to the interaction with electromagnetic waves from mobile phones are:

1. Anatomical properties and biophysical and biochemical mechanisms,
2. Dielectric properties,
3. Absorption of electromagnetic waves,
4. Biological effects,
5. Patterns of usage of mobile phones.

The goal of the project was to collect and review information related to the 5 areas and to write for each of the 5 areas a chapter of a review document. The five topics were converted in five working groups. A sixth working group has been added related to risk communication.

The methodology of using a reflector and a password protected website and for writing drafts of a chapter per working group is outlined in the presentation. Although this methodology seemed to be promising, the ambition was a little bit too high due to the voluntary character of the work to be done. Essentially the project was only successful in collection of relevant reports and publications.

For each working group the important information in literature has been collected as is described in the summary report. Open areas have also been identified. This information will be used to define future research programs.

The project has been presented at three international conferences [1] [2] [3]. The project will be continued through collection of papers that will be published on the dedicated website.

**References**

