



MOBI-KIDS

Study on communication technology,
environment and brain tumours
in young people

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Outline presentation

- Background
- Study objective
- Study design
- Data collection
- Validation studies
- Planning
- Questions?



Background: Brain tumours

- Brain tumours second most common cancer type in young people (after leukemia)
- Risk factors of brain tumours largely unknown
 - Known risk factors:
 - Family history of brain tumours
 - Ionizing radiation
 - Speculated risk factors:
 - Chemicals
 - Allergies
 - Electromagnetic fields (EMF)

Background:

Communication technologies

- Dramatic increase in wireless communication technology usage, e.g. mobile phone, WiFi, particularly young people



- Public and public health concern/interest
 - International recommendations:
 - WHO International EMF Project
 - EU supported EMF-Net
 - National recommendations

RF & (Children's) Health

- Health effects of radiofrequency fields (RF) hardly demonstrated at this point, e.g. INTERPHONE

... but if there is a risk, it is likely to be greater for exposures in childhood and adolescence

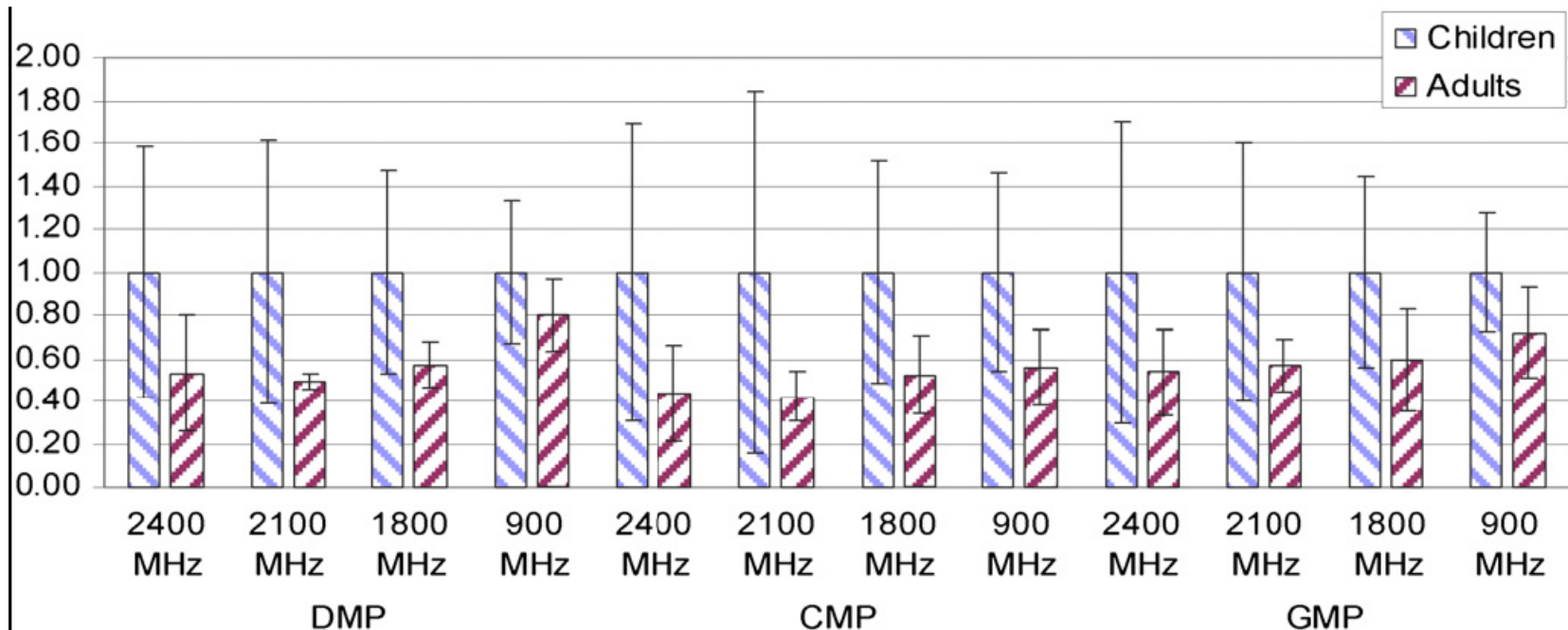
...

- Children will have more exposure:
 - Greater quantity of use as much cheaper than before
 - Many more years of use
- Children may be more vulnerable due to developing brain and skull



Children's exposure is greater...

The relative mean MSAR1g tends to be higher in children than in adult brain tissues
(results normalized to children)



Wart et al, 2008

Study objective



mobi-kids

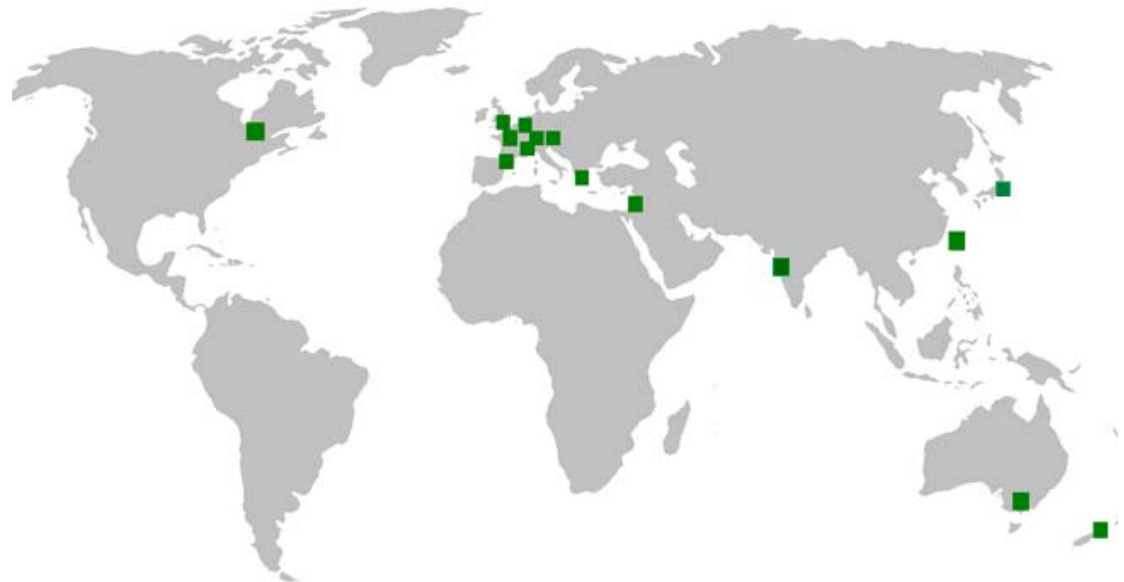
Study on Communication Technology,
Environment and Brain Tumours in Young People

To assess the risk of brain tumours
in young people in relation to:

- childhood and adolescent exposure to EMF from wireless communication technologies
- other potential environmental and host factors

Participating countries (15)

- Australia
- Austria
- Canada
- France
- Germany
- Greece
- India
- Israel
- Italy
- Japan
- New Zealand
- Spain
- Taiwan
- The Netherlands
- UK



Project management

- Funding:
 - European Union – FP7 - Grant agreement n°226873
 - National and local grants
- International coordinator:
Elisabeth Cardis, CREAL
Barcelona, Spain





Study design

- Case-control study
 - Cases
 - Benign and malignant brain tumours
 - Aged 10-24y
 - Diagnosed during study period
 - Residing in study region
 - Controls
 - Hospital-based (to minimize non-participation and selection bias): patients operated for suspected appendicitis
 - Aged 10-24y
 - 2 per case
 - Individually matched on age, sex and region

Expected number of brain tumour cases in the age range 10-24y

Country	Expected number of cases	
	Per year	Study period
Australia	71	178
Austria	35	86
Canada	94	234
France	94	235
Germany	125	313
Greece	25	63
<i>India</i>	?	?
Israel	40	120
Italy	68	169
<i>Japan</i>	?	?
New Zealand	25	63
Spain	125	313
<i>Taiwan</i>	?	?
The Netherlands	84	210
Total	786	1,984



Data collection

- Face-to-face interview with subject & parent(s):
 - Detailed communication technology usage, e.g. mobile phone, cordless phone, WiFi
 - History of home and school addresses
 - Subject and family history of diseases
 - Exposure to medical and dental radiation
 - Occupational history
 - Exposures *in utero* and preconception
- Optional: Saliva collection for genetic analyses

Validation self-reported mobile phone use



- Historical traffic/billing records from providers
 - Frequency and duration of voice and data use
- Software-modified-phones (SMP) study among volunteers
 - Frequency and duration of voice and data use
 - Laterality
 - Estimated output power



Validation brain tumour diagnosis

- Tumour localisation:
review of MRI/CT scans to mark precise location of tumour on specially developed grids
- Tumour diagnosis:
central review of sample of histological slides
by international panel of neuropathologists to verify diagnosis



Planning

- Ethics approvals:
 - Obtained or ongoing in most countries
- First interviews started in first countries in October 2010
- Data collection duration: 2.5 years

Questions?

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