

SCAMP- Study of Cognition, Adolescents and Mobile Phones

Title: Secondary School Cohort Study of Mobile Phone Use and Neurocognitive and Behavioural Outcomes

Principal Investigator: Dr Mireille Toledano

Start Date: 01 January 2014

End Date: 31 December 2016

Duration: Approximately 36 Months

Total Funding: £858,844.00

Scientific summary of research

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Background In the UK, 70-80% of 11-12 year olds own a mobile phone. Children's potential sensitivity to radiofrequency exposures from mobile phones, highlighted by the Stewart Report in 2000, remains a key area of scientific uncertainty. The latest World Health Organisation radiofrequency research agenda highlights this gap, ranking 'prospective cohort studies of children and adolescents', including neurocognitive and behavioural outcomes, as 'highest priority research need'.

Aim To conduct a 3 year secondary school-based cohort study to investigate prospectively whether mobile phone use is associated with neurocognitive and behavioural outcomes. Specifically, the aim is to discern whether any observed associations are likely due to exposure to radiofrequency fields from phones, all radiofrequency sources (e.g. DECT phones, WLAN), or from the 'brain-training' that may occur from frequent use of technology.

Study Duration Approximately 36 months

Research Plan The study will establish and follow a cohort of 2,500 school children in year 7 (ages 11-12 years) from ~25 schools in outer London for a period of 2 years. Parents will be asked to give consent and complete a questionnaire. Baseline data collection will take place via a computerised assessment conducted in each school. The assessment will include standardised neurocognitive tests, validated behavioural screening scales, and a questionnaire on mobile phone use, use of other radiofrequency sources, lifestyle and potential confounders e.g. video gaming. Traffic data from network operators will be requested annually augmented by data collected via the Xmobisense app. These data will enable more accurate radiofrequency exposure

metrics to be derived than those based on usage alone, to help differentiate possible 'brain training' from any effects of radiofrequency fields. A validation study will be conducted on ~200 children to collect personal radiofrequency exposure measurements to allow differentiation of mobile phone exposures from other radiofrequency sources, identify exposure-relevant behaviours and enhance and validate exposure assessment in the main cohort. Follow-up assessment in schools will take place in year 9 (age 14 years). Epidemiological analyses of mobile phone use and changes in neurocognitive and behavioural outcomes, i.e., follow-up assessment vs. baseline assessment, will be undertaken.

Research Team Dr Mireille Toledano will take overall responsibility for the study based at Imperial College London, and will oversee, together with Professor Paul Elliott, Director of the MRC-PHE Centre for Environment and Health, all epidemiological aspects of the study. Both Dr Toledano and Prof Elliott have long standing expertise in EMF epidemiology and bring added value and experience to this study from having successfully led the set-up of the UK COSMOS cohort of 105,000 adult mobile phone users.

Professor Michael Thomas, Director of the Centre for Education Neuroscience, and Dr Iroise Dumontheil both at Birkbeck University, provide expertise in neurocognitive development, including extensive experience designing and conducting in-school research on children. Professor Martin Rössli, head of the Environmental Exposures and Health unit at the Swiss Tropical Public Health Institute is an internationally renowned expert in personal EMF exposure assessment, currently leading the HERMES study on mobile phone use amongst adolescents in Switzerland.

Potential Impact on Policy This research will generate a rich and unique dataset with which to address current gaps in, and the limitations of, available evidence and directly responds to World Health Organisation research priorities. Research outputs on mobile phone use, total personal radiofrequency exposures, and potential associated health risks will enable review of current UK health policy precautionary advice regarding children's mobile phone use. With an improved understanding of UK children's radiofrequency exposures, this study will provide the evidence base with which to inform policy and through which parents and their children can make informed life choices.