

## **Sleep EMF and Children's Health: Protecting the Brains of the Future**

Cell Phones, Wireless and Children's Health PAS Session 4580

Maya Shetreat-Klein M.D.

### **What resources can I share with patients so they can educate themselves about this issue?**

The BabySafe Project [babysafeproject.org](http://babysafeproject.org)

Environmental Health Trust [ehtrust.org](http://ehtrust.org)

Grassroots Environmental Education [grassrootsinfo.org](http://grassrootsinfo.org)

American Academy of Pediatrics Letter to the FCC on Radiofrequency Fields 8/29/2013

<http://bit.ly/17tQclg>

AAP Letter to Rep. Kucinich Support of H.R. 6358, Cell Phone Right to Know 12/2012 <http://goo.gl/ErffB8>

[Textbook of Children's Environmental Health, 2013](#) Edited by Philip J. Landrigan and Ruth A. Etzel, Chapter 41. *Electromagnetic Fields* by Kurt Straiff, Robert Baan, and Neela Guha

### **What materials detail simple steps that patients can take at home to reduce exposures?**

Dr. Moskowitz Director of the Center for Family and Community Health Tips <https://goo.gl/hmQkun>

Vienna Medical Association Cell Phone Tips [Full Poster](#) [Printable PDF](#) <https://goo.gl/SQ9idz>

[Doctors Advice on Cell Phones Brochure](#)

[Doctor's Advice on Wireless](#)

BabySafe Booklet <http://goo.gl/l0Zeeb> (PDF of [Poster](#))

### **What resources exist for best practice in a school setting?**

Several organizations have developed best practices for schools. Several teacher unions and governments have as well. Please see the below information.

Collaborative For High Performance Schools Low-EMF Best Practices Criteria <http://goo.gl/rQWgc4>

The Child Safe School Site [thechildsafeschool.org](http://thechildsafeschool.org)

EHT Wi-Fi in School Webpage [ehtrust.org/key-issues/cell-phoneswireless/wifi-in-schools](http://ehtrust.org/key-issues/cell-phoneswireless/wifi-in-schools)

An example of [Best Practices in a private school: Upper Sturt Wireless Policy](#) <https://goo.gl/U0h5M8>

Guidelines for Safer Use of Technology for Schools for the New York State Teachers Union

<http://goo.gl/g5lew7>

Canadian Teacher Federations brief "The Use of Wi-Fi in Schools" <http://goo.gl/SG6zWy>

Read policy efforts by governments such as France, Israel, Belgium and Spain. <http://goo.gl/bN0nn3>

### **Where can I learn more about the science?**

EMF Portal An extensive literature database from Aachen University <http://www.emf-portal.de/>

Collaborative on Health and the Environment/Electromagnetic Fields

[healthandenvironment.org/initiatives/emf](http://healthandenvironment.org/initiatives/emf)

Environmental Health Trust [ehtrust.org](http://ehtrust.org)

Dr. Moskowitz Director of the Center for Family and Community Health at the University of California Berkeley School of Public Health Electromagnetic Radiation Safety [saferemr.com](http://saferemr.com)

Microwave News [microwavenews.com](http://microwavenews.com)

TRANSCEND Research Program (Martha Herbert) [transcend.mgh.harvard.edu/](http://transcend.mgh.harvard.edu/)

## Scientific Citations on Sleep and RF exposure

Bengt et al., (2007) [The Effects of 884 MHz GSM Wireless Communication Signals on Self-reported Symptom and Sleep \(EEG\)- An Experimental Provocation Study](#) PIRS Online Vol. 3 No. 7 pp: 1148-1150

Cao H et al., (2015) [Circadian rhythmicity of antioxidant markers in rats exposed to 1.8 ghz radiofrequency fields](#). International Journal of Environmental Research and Public Health. Feb 12;12(2):2071-87.

[Danker-Hopfe et al.,\(2016\) Effects of mobile phone exposure \(GSM 900 and WCDMA/UMTS\) on polysomnography based sleep quality: An intra- and inter-individual perspective](#), [Environ Res](#). 2016 Feb;145:50-60. doi: 10.1016/j.envres.2015.11.011.

[Eyvazlou et al., \(2015\) Association between overuse of mobile phones on quality of sleep and general health among occupational health and safety students](#). [Chronobiol Int](#). 2016;33(3):293-300.

Loughran SP, Wood A, Barton JM, Croft RJ, Thompson B, Stough C (2005). [The effect of electromagnetic fields emitted by mobile phones on human sleep](#). [Neuroreport](#), 16, 1973- 6.

Lowden A, Åkerstedt T, Ingre M, Wiholm C, Hillert L, Kuster N, Nilsson JP, Arnetz B (2011). [Sleep after mobile phone exposure in subjects with mobile phone-related symptoms](#). [Bioelectromagnetics](#), 32, 4-14.

Lustenberger C et al., (2013) [Stimulation of the brain with radiofrequency electromagnetic field pulses affects sleep-dependent performance improvement](#). [Brain Stimul](#). Sep;6(5):805-11.

Mann and J. Röschke, (1996) [Effects of Pulsed High-Frequency Electromagnetic Fields on Human Sleep](#), [Neuropsychobiology](#) 33:41-47,

Mohammed HS, Fahmy HM, Radwah NM, Elsayed AA (2013). [Non-thermal continuous and modulated electromagnetic radiation fields effects on sleep EEG of rats](#). [J Adv Res](#), 4(2), 181-7.

Regel Set al. (2007) [Pulsed radio-frequency electromagnetic fields: dose-dependent effects on sleep, the sleep EEG and cognitive performance](#). [J Sleep Res](#). Sep;16(3):253-8.

Schmid et al., (2012) [Sleep EEG alterations: effects of different pulse-modulated radio frequency electromagnetic fields](#). [Sleep Res](#). Feb;21(1):50-8.

Schmid M, Murbach M, Lustenberger C, Maire M, Kuster N, Achermann P, Loughran S (2012b). [Sleep EEG alterations: effects of pulsed magnetic fields versus pulse-modulated radio-frequency electromagnetic fields](#). [J Sleep Res](#), 21(6), 620-9.

Stalin et al., (2016) [Mobile Phone Usage and its Health Effects Among Adults in a Semi-Urban Area of Southern India](#), [Journal of Clinical and Diagnostic Research](#). Jan, Vol-10(1): LC14-LC16

Thomee S, Härenstam A, Hagberg M (2011). [Mobile phone use and stress, sleep disturbances, and symptoms of depression among young adults – a prospective cohort study](#). [BMC Public Health](#), 11, 66.