

Dear Chairwoman Clyburn, Commissioner Rosenworcel, Commissioner Pai,

Thank you for trying to understand and connect with all concerns of adverse health effects from cell phones.

I am a physician board certified in preventive medicine. I did my preventive medicine residency at the University of Michigan and then I did an EIS (Epidemic Intelligence Service) fellowship at the National Center for Chronic Diseases and Health Promotion from 2003-2005.

Currently I am working as an epidemiologist dealing with chronic diseases at the Ministry of Health of the Kingdom of Saudi Arabia.

As a born American citizen and as a physician and epidemiologist, I plead with your hearts and minds to greatly increase standards for health safety for adults and even more for the health of children who are now using cell phones in the hundreds of millions all over the world.

I assume that many comments expressed concern over the excess risk for different types of cancers and also other adverse health effects. I also share those concerns for adults and populations that need special attention with regard to health risks of mobile phone use are children and youth, as these populations are increasingly using cell phones and are more vulnerable to the radiation. But I would like to comment on two areas that are not given enough attention?

I am referring to the adverse effect on fertility of males and females and potentially birth defects to sperms from cell phones kept in pant pockets and also potential birth defects from pregnant women using a cell phone and especially if they keep the cell phone close to their abdomen or pelvis.

As one attached review of such papers says in its abstract:

?The suggested use of hands-free kits lowers the exposure to the brain, but it might theoretically increase exposure to the reproductive organs.?

Sperm have been identified to be particularly susceptible to damage from microwave radiation in multiple studies. The studies on human sperm and mobile phones consistently demonstrate adverse effects on sperm leading to fertility problems and may portend potential birth defects (through DNA damage in sperm).

In terms of public health, the latter effects are most troublesome, as the population gene pool could be damaged which can have serious and irreversible adverse effects on future generations. There are also (animal) studies showing damage to ovarian DNA and egg follicles in ovaries and increased growth retardation and death rate in animal embryos.

In general, it is hard to deliver more than one simple public health message to the public at large. The concern about the association of cell phones with cancer has been in the news for many years and received top headlines in May of 2011. So public health messages need to be designed to make the public aware of the risks of mobile phone use for fertility and the fetus.

This particular vulnerability of sperms is not surprising because sperm cells have far less ability to protect against deleterious effects.

Sperm are cells in which the usual cell contents have been stripped away in order to allow the sperm the ability to travel fast to their destination. However, the removed cell contents include measures to protect against damage such as anti-oxidative mechanisms. Although the body has some measures to minimize damage to DNA, the 3% risk of minor and major birth defects demonstrates that substantial risk remains.

The studies on human sperm and mobile phones demonstrate adverse effects on sperm leading to fertility problems and most ominously suggest that the DNA damage to sperms can lead to at least some of these sperms being the ones that cause fertilization and that can lead to birth defects.

According to Dr. Joel Moskowitz, the director of the Center for Family and Community Health in the School of Public Health at the University of California at Berkeley, 8 original studies which have looked at least at one of four outcomes sperm count, motility, viability or morphology, detected significant abnormalities.

Another review done by the Environmental Working Group on 10 available studies remarked that these studies found "statistically significant correlations between cell phone radiation and sperm health, and many found that the adverse changes increased with the amount of radiation exposure.?"

The reviews will show that there are also some studies which did not detect the same abnormalities.

A very recent study done at Qassim University in Saudi Arabia looked at testicular architecture enzymatic activity. Just 60 minutes or less of mobile phone use had a negative impact on testicular architecture and enzymatic activity. The adverse effects on testicular architecture can be seen clearly in the pathology slides by the naked eye.

In terms of public health, DNA damage in sperm possibly leading to birth defects is most troublesome. This is because population growth throughout most of human history has been exponential and hence DNA damage in sperm may translate to an exponential number of offspring sharing the DNA defect which might lead to birth defects. DNA defects are irreversible and hence

damage the population gene pool and can have serious adverse effects in every future generation.

This concern for the future human gene pool is all possible or probable (given the billions of men, pregnant women, and children using cell phones, but not absolutely certain that it will happen...however what is certain is that we will be in anguish and regret if this concern turns out to have an impact on the human gene pool because if it happens, then it is irreversible damage for generations to come.

De Luliis is one of the researchers whose study demonstrated DNA damage to sperm from cell phones. De Luliis notes "These findings have clear implications for the safety of extensive mobile phone use by males of reproductive age, potentially affecting both their fertility and the health and wellbeing of their offspring."

"There may be more than one way in which cell phones adversely affect sperm. Many researchers conclude that the phone's RF-EMR radiation penetrates tissue and interferes with the body's own electromagnetic frequency at a cellular level, resulting in abnormal sperm.

Many men who talk on a cell phone using a Bluetooth device or other headset keep the phone in a pants pocket or clipped to a holster. This exposes their testes to excessive cell phone radiation.

"Children, adolescents, young adults, and especially pregnant women should take precaution and avoid keeping the cell phone close to their reproductive organs, in addition to their head," Moskowitz said. "These are the parts of our body that are highly sensitive to cell phone radiation. This is a wake-up call for those who tend to leave cell phones in their front pocket."

Several recent articles suggested that cell phone radiation might be harmful to the developing fetus. For example, a 2009 study in Turkey found that after pregnant rats were exposed to cell phone radiation for 15 minutes twice a day during the entire gestation period, their female pups had fewer ovarian follicles (Gul 2009).

A 2010 study demonstrated adverse neurologic effects. Specifically in cell phone exposed cases, a significant decrease was found in the number of Purkinje cells along with a tendency for granule cells to increase in cerebellum (Ragbetli 2010).

A 2012 study by researchers at the Yale University School of Medicine found that mice exposed to cell phone radiation during gestation were hyperactive and had impaired memory (Aldad 2012).

As mentioned by Dr. Devra Davis, a leading expert on cell phones and adverse health effects, "a growing body of experimental and human studies reveals that such radiation damages both exposed mothers and the brain, liver and eye of their offspring."

Most disconcerting are findings from Prof. Nesrin Seyhan, the NATO-supported founding chairman of the Biophysics Department at Gazi University in Ankara, Turkey, who reports that prenatally exposed rats and rabbits have fewer brain cells -- and those that survive sustain more damage.??There have been similar findings in two human studies. UCLA researchers reported that cell phone exposure during pregnancy and after birth was associated with behavioral problems in young children (Divan 2008; Divan 2012).

Since children and future offspring are by definition innocent of the offending behavior, there is an ethical imperative to ensure that we change our FCC standards to protect our health and to honor the universal and principle of "First do no harm."

Thank you for hearing my concerns.

I did spend some time to gather and read this articles.

However, I did not do an exhaustive search for articles. I am sure that there are more articles in respected peer review journals showing damage from cell phone to human sperms and to animal (and thus likely human) fetuses.

Please see below for some of the references....Unfortunately, I did not have time to provide all the references I used...but some are below and others can be located by google when copying and pasting the author's name and some text from the article that I had referenced.

Please greatly increase the FCC standard for cell phones to become safer. There are many technologic improvements that are essential. For just one example cell phones can be made so that there is not 360 degree transmission of the radiation....the phone can be designed such that the part that will be touching or close to head can be made to not send radiation.

* Please have biologically based RF/MW exposure guidelines that protect from non thermal health effects.

[Current guidelines only allege to protect for thermal heating. FCC's power density value should be lowered from 1,000 uW/cm² to 0.0003 uW/cm². Ref. THE BIOINITIATIVE REPORT 2012 A Rationale for Biologically-based Public Exposure Standards for Electromagnetic Fields (ELF and RF) - <http://www.bioinitiative.org/>]

* Please stop using SAR and use only electric field based power density values for the RF/MW

exposure standard.

[Currently two values are used. One for near field (holding a phone to your head or lap top on your lap) and one for far field (all other exposure). Near field value is Specific Absorption Rate (SAR) which uses a probe in dead animal tissue to measure for a heating effect. Far field value is a power density unit which is calculated from the actual electric field values. The FCC wants to move to SAR only. This is absolutely wrong as SAR has no relation to non thermal effects, cannot be verified by measurements in the field and does not take into account additional transmitters that may be present in real life conditions. Ref. - Evaluation of Specific Absorption Rate as a Dosimetric Quantity for Electromagnetic Fields Bioeffects]

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0062663>]

* Safety standards for sensitive populations need to be set at lower levels than for healthy adult populations.

[Sensitive populations include the developing fetus, the infant, children, the elderly, those with pre-existing chronic diseases, and those with developed electrical sensitivity (EHS). A child's brain has double the permittivity of an adult's brain. [Ref. THE BIOINITIATIVE REPORT 2012 A Rationale for Biologically-based Public Exposure Standards for Electromagnetic Fields (ELF and RF) -

<http://www.bioinitiative.org/> and <http://www.plosone.org/article/info%3Adoi>

[%2F10.1371%2Fjournal.pone.0062663](http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0062663)Evaluation of Specific Absorption Rate as a Dosimetric Quantity for Electromagnetic Fields Bioeffects]

* How you or your loved ones have been harmed from RF/MW exposure. * That this proceeding requires a NEPA evaluation.

[Ref. - <http://www.ca6.uscourts.gov/opinions.pdf/10a0374p-06.pdf> Per No. 09-5761 Heartwood, Inc., et al. v. Agpaoa, et al. there is standing to challenge the current exposure guidelines because you have suffered an 'injury in fact' that is concrete and particularized; is actual or imminent; is traceable to wireless exposure; and that it is likely that this injury will be redressed by lower exposure guidelines.]

* Please re-fund the EPA's non ionizing radiation protection research program for developing safe RF/MW exposure guidelines because the FCC cannot both promote wireless technologies and regulate RF/MW radiation and as is not a health agency it does not have the expertise to evaluate the science on RF/MW exposure.

?Please stop facilitating, encouraging, and supporting the reckless expansion of WiFi and other wireless exposures resulting in the involuntary exposure to RF/MW of our population, which is inherently biologically harmful to humans and other living beings.

Thanks much.

Sincerely,

Omer Abid, MD, MPH phone 00966 5 567 35 830 Again, please see below for some relevant papers...the order is random.

1. The Open Reproductive Science Journal, 2011, 5, 125-137 125

Open Access

Cell Phones and their Impact on Male Fertility: Fact or Fiction

Alaa J. Hamada, Aspinder Singh and Ashok Agarwal*

Center for Reproductive Medicine, Cleveland Clinic, Cleveland, Ohio, USA

2. Journal of Andrology, Vol. 33, No. 3, May/June 2012

Effects of the Exposure to Mobile Phones on Male Reproduction: A Review of the Literature

SANDRO LA VIGNERA, ROSITA A. CONDORELLI, ENZO VICARI, ROSARIO D'AGATA, AND ALDO E. CALOGERO

From the Section of Endocrinology, Andrology, and Internal Medicine and Master in Andrological, Human Reproduction, and Biotechnology Sciences, Department of Internal Medicine and Systemic Diseases, University of Catania, Catania, Italy.

3. J Assist Reprod Genet

Challenging Cell phone Impact on Reproduction: a Review

Zaher Mehri

4. Reproductive Biology and Endocrinology

BioMed Central

Open Access

Review

Pathophysiology of cell phone radiation: oxidative stress and carcinogenesis with focus on male reproductive system Nisarg

R Desai^{1,2}, Kavindra K Kesari³ and Ashok Agarwal

5. Maternal cell phone and cordless phone use during pregnancy and behaviour problems in 5-year-old children

Mònica Guxens,¹ Manon van Eijsden,^{2,3} Roel Vermeulen,^{1,4} Eva Loomans,^{2,5} Tanja G M Vrijkotte,⁶ Hans Komhout,¹ Rob T van Strien,⁷ Anke Huss^{1,8}