

Precaution and Prevention: Public Health Measures, strategies and tools to Reduce Children's Exposure to Radiation from Mobile Phones and other wireless devices

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IIAS/EHT Expert Forum 2017:
Wireless Radiation and Human Health

Israel , 23-26 January 2017

CYPRUS NATIONAL COMMITTEE ON ENVIRONMENT AND CHILDREN'S HEALTH

(Ministerial Council Decision No. 59.304, 28/1/04)

A Multidisciplinary, scientific Comm. Proposed and financed by Min. of Health and appointed by the Council of Ministers. Our mandate is .

- To provide scientific support/advice to the Minister of Health, other Ministers, Regulators and Decision Makers.
- To raise awareness and integrate prevention and precaution into policies and every day life.
- To insure prompt responses to emerging threats and not fully established but well documented risks
 - Education of the society - training of Professionals

No executive power

WHY SUCH A COMMITTEE

- Risk assessment/Risk Management practices and Legislation in many cases fails or take **DELAYED ACTIONS** to protect the health of infants and children.*

WHY ?

Because of Uncertainties or Scientific Ignorance / Controversies and /or Economic Interest: examples
ETS, synergistic/ cocktail effects , biological effects of
EMF/RF

**THERE IS ONLY ONE INTERIM OPTION TO PROTECT
CHILDREN FROM POTENTIAL RISKS: AWARENESS -
PRECAUTION AND REDUCTION OF THE EXPOSURE**

***Based on.** "Applying the precautionary principle in environmental risk assessment to children", EUR/04/5046267/BD/9, *Ph.J. Landrigan & L.Trasande*

Focus on Indoor ENVIRONMENT : Homes and Schools

WHY?

1. Minimisation of exposure and risks is mostly dependent on PARENTS and Teacher Attitudes. It is less dependent on legislative measures.
2. At homes and schools children could spent at least 60-90% of their time

Target population

Parents, Doctors and Health care providers,
Teachers, Children, media

Holistic Interventions

PRECAUTIONARY PRINCIPLE

COM 1 (2000)



1. RESEARCH (Pilot investigations) for COLLECTION OF INFO AND DATA ON CYPRUS REALITY

THESE can support awareness campaigns and influence Policies

4. EDUCATION AND TRAINING

Doctors,
Health care providers
Teachers
Parents

5. MEDIA
Press, TV,
Radio

3. RAISE AWARENESS

2. POLICY LEVEL
Scientific advice
Lobbing

Multi-media actions and tools

UNDERSTAND
THE RISK, LEARN
HOW TO AVOID
and MINIMIZE
EXPOSURE

WEB
Videos

Seminars -
TRAINING

Media
TV/radio
Press

Εθνική Επιτροπή Κύπρου
"Περιβάλλον και Υγεία του Παιδιού"

Προστατέψτε
τα παιδιά και τις εγκύους από τους πιθανούς
κινδύνους της ακτινοβολίας που εκπέμπεται
από τα κινητά τηλέφωνα και άλλες ασύρματες
συσκευές και τα Wi-Fi

«Η μη ιονίζουσα ηλεκτρομαγνητική ακτινοβολία ραδιοσυχνότητας
(30kHz-300 GHz), η οποία συμπεριλαμβάνει την ακτινοβολία που
εκπέμπεται από τα κινητά τηλέφωνα, τα Wi-Fi και άλλες ασύρματες
συσκευές/συμβάσεις επικοινωνίας, κατατάσσεται στους πιθανούς
καρκινογόνους παράγοντες για τον άνθρωπο»
(Παγκόσμιος Οργανισμός Υγείας, 2011)

Με τα παρόντα δεδομένα και ενώ η έρευνα εξελίσσεται, στη βάση της Αρχής
της Προφύλαξης, η προώθηση του εμβρύου και του παιδιού και η μείωση της
έκθεσής τους στην ηλεκτρομαγνητική ακτινοβολία, είναι η μόνη υπεύνητη επιλογή.

Στον οδηγό αυτό θα βρείτε χρήσιμες πληροφορίες που θα σας βοηθήσουν,
με δικές σας ενέργειες, να προστατέψετε τα παιδιά σας.
Σεπτέμβριος 2015

I Learn and I
Can Protect my
child

Αρτοποιήτρια:
Δρ. Στέλλα Κωνσταντίνου
Δρ. Αλέξανδρος Χατζηγεωργίου

Αρτοποιήτρια 2011

I learn and I can Protect my Child from Toxic Chemicals and other Environmental Risks



2011,
2013,
New
Revised
edition
2017

WHAT ARE THE
RISKS ?

WHAT I CAN
DO ?

1. Why Children are vulnerable to Toxic factors.
2. Indoor air in homes and schools
3. Mercury and Lead
4. Pesticides:
5. Endocrine disruptors in every day life
8. Healthy Nutrition
9. Energy Saving Lamps
10. Protection from Sun and noise
11. Environmental Tobacco smoking
12. Protect children from mobile , Wi-Fi, and other wireless devices and connections
13. Usage of Tablets, smart phones, TV by teenagers
Potential Impacts on Health and wellbeing
14. Guide to safe Toys
15. Brief Guidance on best choices to minimize exposure

Chief Editors

Dr Stella Canna Michaelidou
and Dr Adamos Katzipanagi

ADDRESSING EMERGING OR NOT FULLY DEFINED and or /REGULATED RISKS

Cyprus National Committee on "Environment and Children's Health"

Our children - so valuable and so vulnerable to the effects of toxic substances



Protect your child

YOU can protect your child if you know and understand the risks that YOU can minimize and control.

The protection of children from the effects of toxic substances is for them a gift of life!

In this GUIDE you will find useful information which will help you protect your children

**Don't smoke,
you are poisoning the air
I breathe**



National Committee on Environment and Children's Health

Face painting

Mobile phones, Wi-Fi
Wireless Tech

Baby care and
cosmetics

Energy saving lamps (CFLs with
Hg)



EMF/RF: A scientific controversy

THERMAL

BUT

NON THERMAL
BIOLOGICAL &
Long-term effects

ICNIRP/EC Limits -
1999/2009
Short exposure/ short-
term effects at levels of
power density W/m^2

Occur at substantially
lower level (as low as
 $10^{-6} W/m^2$) of energy
especially under
conditions of
continuous exposure

SCMichaelidou

Biointiative report evaluation of 8000 peer reviewed studies 2007, 1800 new studies 2012-2014,
SCMichaelidou



LIMITS INTERNATIONAL -

ICNIRP

Cyprus and most of EU

10,000,000 $\mu\text{W}/\text{m}^2$

Limits based on biological effects till 2007

Salzburg Resolution 2000	1000 $\mu\text{W}/\text{m}^2$
BioInitiative Report 2007	1000 $\mu\text{W}/\text{m}^2$
Austrian Antenna System Guideline	1000 $\mu\text{W}/\text{m}^2$

Limits based on biological effects till now

Austrian Sustainable Building Council	10 $\mu\text{W}/\text{m}^2$
BioInitiative Report 2012	3-6 $\mu\text{W}/\text{m}^2$
Austrian Medical Association 2012	1 $\mu\text{W}/\text{m}^2$
Building Biology Guidelines 2015	0.1 $\mu\text{W}/\text{m}^2$
Natural background	0.000 001 $\mu\text{W}/\text{m}^2$

HMEΠΙΔΑ Cyprus 22-10-15, Λ.Χ. ΜΑΡΓΑΡΙΤΗΣ

FROM BIOLOGICAL EFFECTS TO HEALTH IMPACTS WHY??

Biological effects can lead to adverse health effects if exposure is chronic

Ref Bionitiative updated report 2014

WHY ??

1, They interfere with normal body processes (DISRUPT HOMEOSTASIS)

- prevent the body from healing damaged DNA,
- produce immune system imbalances,
- cause metabolic disruption and lower resistance to disease across multiple pathways.

2. Essential body processes can eventually be disabled and lead to pervasive impairment of

- metabolic,
- neurological and
- reproductive functions

WHY we address wireless technology

(mobile phones, Wi-Fi/WiMAX, Bluetooth, DECT, baby monitors, playing consoles tablets etc)

Exposure in 21st
century is **UNIQUE**

INTERMITTENT

MULTIPLE

**ENTIRE
POPULATION IS
AFFECTED**

2014 -

**IT STARTS
AND
CONTINUES
THROUGH
VULNERABLE
STAGES**

**From EMBRYO
to
ADOLESCENCE**

1999

WHY we address wireless technology

1. Exposure is Unique

2. Legislation based on (*ICNIRP* / EC Recom. 1999/519

- Does not address long term well documented biological effects nor Potential Carcinogenicity. It does not specifically address enhanced exposure and vulnerability of foetuses & children

3. Uncertain Safety of the Technology.
Emerging devices without premarket testing especially for long term effects on children

4. People are not adequately informed about the risks and may have erroneous perceptions of safety

5. Good Practices and alternatives DO EXIST to reduce exposure

HOW we are addressing the risks of wireless technology

FOCUS ON HOUSE AND SCHOOLS ...

POLICY Level

An open dialogue to avoid Wi-Fi:

- ❖ Min. of Education
 - ❖ Min. Of Health
- Working closely with
- ❖ Parliament
 - ❖ Environment Commissioner

Awareness Raise & Promote
Precautionary attitudes
PARENTS

Training and education

- Paediatricians
- Health care providers
- Teachers
- children



Campaign "Awareness raise to reduce exposure and protect children from EMF/RF"

World Child Day Press conference
By the Minister of Health Dr G. Pamborides
11/12/2015

A LAND MARK EVENT

- ✓ The need for Protection of Children from EMFs accepted by all
- ✓ Strong support and commitment for Precautionary actions by the Minister of Health

Joined event
with Min.^{re}
Health, Min.
of Education
Min of
Communication
The
Environment
Commissioner
And the
National
Committee

KEY suggestions from our Committee to the Minister of Health

Since changing of the basic Legislation is difficult task and will take time we propose the following:

- On the basis of Precautionary Principle biological relevant criteria must be applied complimentary to the existing limits at least for the evaluation of children's exposure.
- To promote supplementary Regulations based on the model of France Legislation 2015, prohibiting Wi-Fi and mobile phones in Kindergarten, and elementary schools at least and put restrictions to their use at secondary schools
- Awareness campaigns should be straining aiming to inform parents, teachers and children about the risks and means to minimize them
- Via school medical services students should be monitored for *Electromagnetic hypersensitivity symptoms*

Snapshot of suggestions in MEMO send to Minister of Education on the issue of Wi-Fi

- The necessity for Wi-Fi is questioned and should be avoided
- Wi-Fi should be apply only when there is no other solution and under restrictions and prerequisites.
- PILOT implementation -Evaluation
 - started from the highest class with restricted application - not full coverage of the school environment
 - Educating students on risks ,
 - Followed by evaluation of Student's Exposure under realistic conditions and based on biological reference criteria in addition to legal limits because ICNIRP limits do not cover long-term effects and biological effects
 - Monitoring of any symptoms of *Electromagnetic hypersensitivity*

All results evaluation and monitoring to be communicated to parents and the National Committee

Final decision should take to consideration the results of the Pilot

Awareness Raising: Parents and society in general

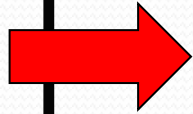
- To educate and inform
- To address wrong perceptions
- To provide practical guidance to minimize exposure and risks

Myths and erroneous perception Vs emerging evidence and realities

Mythos and Reality

Mythos

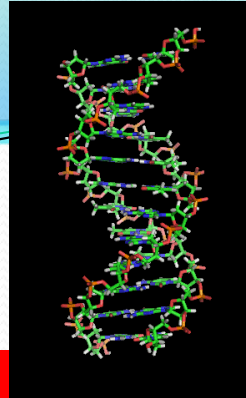
When
devices are
working
within limits
ICNIRP
limits they
are safe



The Reality

- These limits do not protect against
- non-thermal biological effects including cancer
 - long term exposure

Effects on DNA Mythos and Reality



Mythos

- Only the ionizing Radiation can affect the DNA

No

Reality

EMF/RF can destroy the DNA via oxidative mechanisms and the formation of free radicals

It can also affect DNA Repairing Mechanisms

**ELECTROMAGNETIC
BIOLOGY
AND MEDICINE**

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healthcare**

REVIEW ARTICLE

Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation

Igor Yakymenko¹, Olexandr Tsybulin², Evgeniy Sidorik¹, Diane Henshel³, Olga Kyrylenko⁴ and Sergiy Kyrylenko⁵

Mythos and Emerging Reality about Wi-Fi



Mythos

• Because the energy emitted is **WRONG** **SAFE**

REALITY

The average Wi-Fi emitted energy is much lower than the one from mobile. However

1. WI-FI HAVE PULSES & PEAKS OF VERY HIGH INTENSITY
2. EXPOSURE DURATION CAN be VERY LONG FOR SOME HOURS up to 24h
3. The user connected to Wi-Fi (and any bystander) can receive radiation similar as if he is at 50m-150m from a Mast.
4. Wi-Fi can also cause passive exposure to bystanders and other non users

Wi-Fi in school can be like this !!!

A multiple disperse exposure
7h/5d/week /every working week

PASSIVE

ACTIVE

DURATION

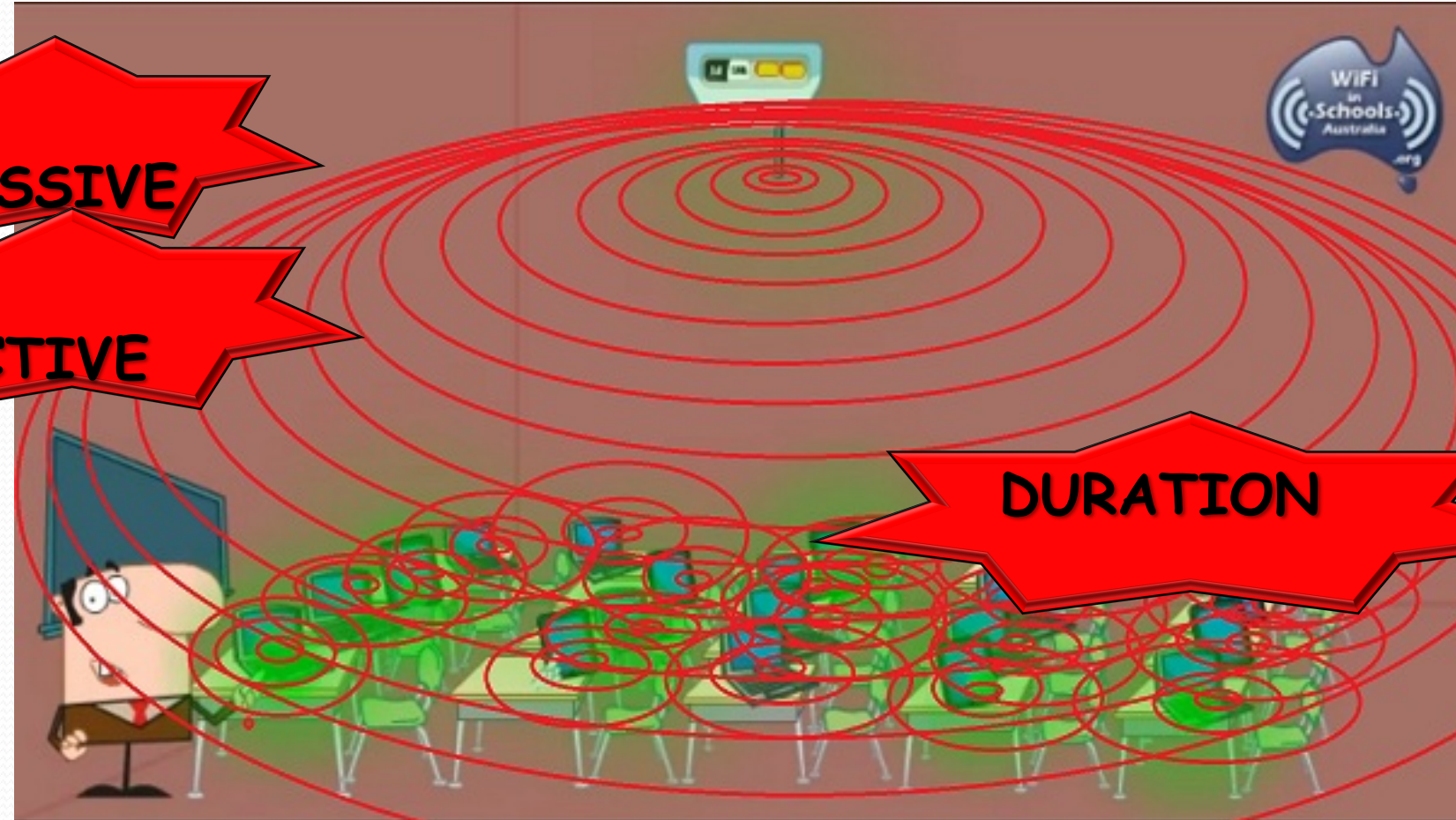


Image adapted from the excellent
video by [WiFi in Schools Australia](http://www.wifiinschools.org.au)

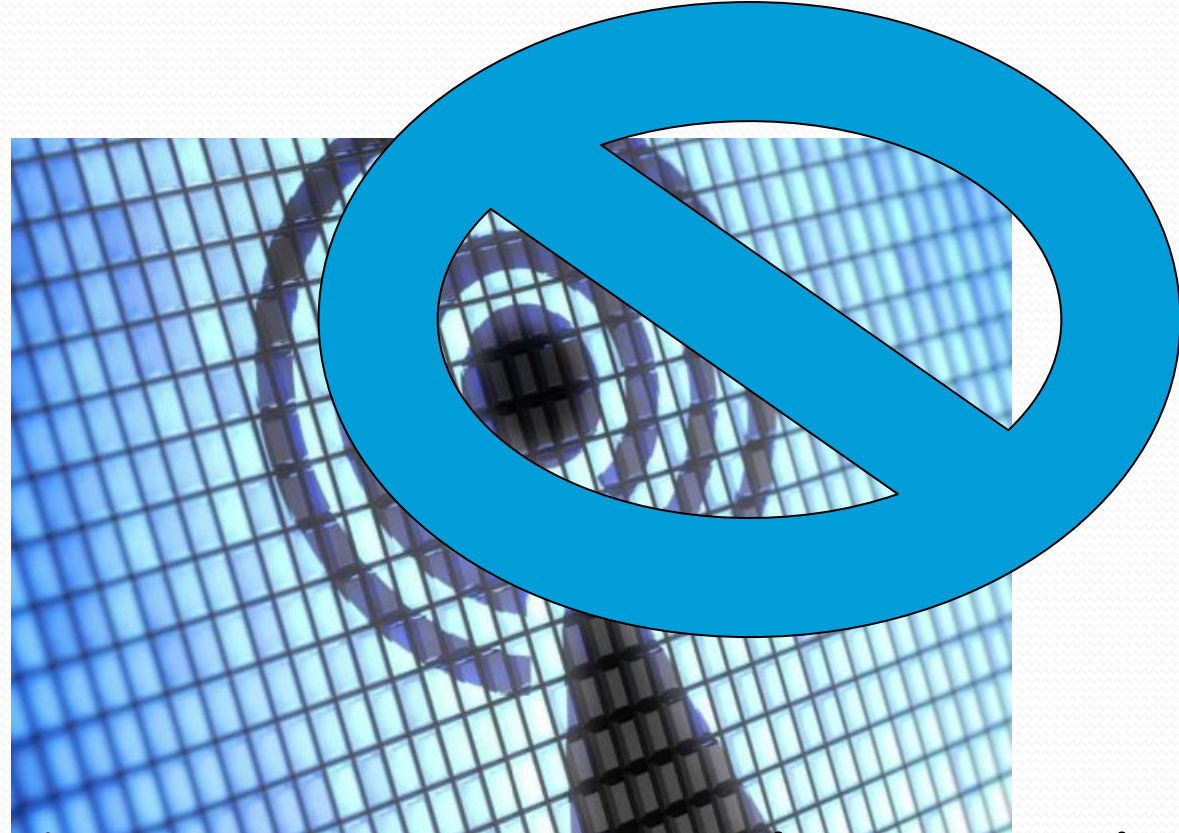


The Austrian Medical Chamber (40,000 doctors):

- Wi-Fi environments will lead to high microwave exposure for students and teachers which might increase the burden of oxidative stress.
-
- Oxidative stress might slow down the energy production especially in brain cells and may lead e.g. to concentration difficulties and memory problems in certain individuals.
- The Austrian Medical Association recommends Wi-Fi free school environments." _

<http://wifiinschools.org.uk/resources/safeschools2012.pdf>

No Wi-Fi in Kindergarden



**France February 2015 : Legislation prohibiting
Wi-Fi in kinder garden**

**And a lot of restrictions an prerequisites for
other applications**

MYTHOS AND REALITY

MYTHOS

- Wireless Baby monitors are safe

Wrong

The CHOICE

- Wired or analogue type but always at a distance of 2m

REALITY

- At a distance of 1m radiation can be of the same order of magnitude as the radiation from a mast at 150m

3 BASIC KEYS TO REDUCE EXPOSURE

- Keep Distance from the source, use hands free
- Reduction of the exposure duration and frequency
- The usage must be inverted proportional to the age of the child
- OPT for wired not wireless. Look for Kinder garden, schools and Play places without Wi-Fi. Wi-Fi should be prohibited
- Deactivate all Wi-Fi, Bluetooth, 3G, 4G when no in use, when pregnant or child are near by and always in the night.
- Children with existing neurological problems that include cognitive, learning, attention, memory, or behavioural problems as well with chronic diseases e.g cancer must be provided with wired learning environment

ON

OFF

SCHOOLS AND PLAY GROUNDS FREE FROM Wi-Fi



School Nurses



Care for Kids



FREE
Wi-Fi

Israe

SCMichaelidou



We love children we
are FREE FROM Wi-Fi

CLOSING REMARKS

1. We know enough! To apply PRECAUTION to insure our children future
2. We must push for safer REGULATIONS ADJUSTED TO CHILDREN SPECIFICITIES (ANSEs 2016)
3. In the interim Biological relevant criteria should be applied.
4. Instead of requiring from society the "ABSOLUTE PROOF OF DAMAGE" we should demand PROOF OF SAFETY from the industry

THANKS FOR YOUR KIND ATTENTION

CYPRUS NATIONAL COMMITTEE ON
ENVIRONMENT AND CHILDREN HEALTH

www.cyprus-child-environment.org

