

Enclosure 1

SCENIHR 2015

a biased assessment of EMF health risks
the example of head tumours

Swedish radiation protection foundation
Priartem, collectif des électrosensibles de France
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Enclosure 1

SCENIHR: a biased assessment of EMF health risks - the example of head tumours

This document demonstrates how the working group on EMF (Electromagnetic Fields) of the European Commission Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) twisted and interpreted the available scientific evidence on EMF and head tumours to make it correspond to the controversial no-risk hypothesis. Similar analyses can be made of all other areas of the assessment on *Potential health effects of exposure to electromagnetic fields (EMF)*, adopted January 27, 2015.

The biased outcome of the assessment was expected considering the composition of the working group. In a sharply controversial area, 9 of 10 experts were selected among those who have in the past expressed a clear position towards a no-risk hypothesis (intellectual bias). Only one potentially diverging voice was invited even though the choice was large. The possibility to see a minority opinion emerge was thus very weak.

1. SUMMARY

A clear majority of recent scientific papers on mobile phones and head tumours shows that mobile phone use increases the head tumour risk. These studies stand out also in qualitative terms, according to several meta-analyses, including the IARC assessment 2011.

The two papers that did not find any increased risks have been largely criticised, especially for exposure misclassification. Joachim Schüz, in charge of the concerned chapter of the SCENIHR assessment, is a co-author of these studies.

A rational assessment of this body of scientific literature would reasonably conclude: *there is consistent evidence of harm and considerable reasons for concern.*

Yet, the SCENIHR experts did not find any evidence of risk. To produce this conclusion they:

- Massively highlighted the few studies that did not find any risks - without mentioning their flaws and bias (Danish cohort, Benson et al).
- Emphasized less relevant subsets of results that did not show any risks (Interphone, Cefalo, Pettersson).
- Dismissed a vast majority of the available studies: the ones that showed a link between EMF and head tumours. (Interphone, Hardell, Cefalo, Sato, Moon)
- Relied on selective brain tumour incidence trend data without checking their accuracy (Sweden), while ignoring worrisome incidence trends (De Vocht, Denmark).
- Buried the actual scientific controversy.

Our study suggests that corporate financing and well-chosen experts, like Dr Schüz, co-author of numerous no-risk studies, also contributed to wipe out the entire body of scientific literature associating radio frequency radiation to brain tumours.

The SCENIHR conclusions are excellent news for strategic military, corporate and economic stakeholders exploiting wireless techniques. How much do democracy and Public Health weight in this context, and who bears the responsibility of the consequences for ignoring the evidence of harm?

2. Recent scientific studies on EMF and head tumours

Malignant brain tumours

Interphone International 13-country study, 2010: The Interphone study on brain tumour risks in relation to mobile phone use showed consistently increased risks in the exposure group where the risks are most likely to be detected first: in the highest exposure group. In this study the heaviest users had used the mobile phone for more than 1640 hours (30 min a day over 10 years or slightly more than 1 hour a day over 4 years). To use a mobile phone for 30 min – 1 hour a day is common usage in the EU-countries today, even among children and adolescents.

In spite of this misclassification of exposure, the study showed that mobile phone use induced an increased risk for glioma by 40% for the so called heavy users (1640 hours) and by 380% for those with a total of 1640 hours of use within the previous 1-4 years. It also showed an increased risk of 87% in the temporal lobe, the most exposed part of the brain, for this user category. The study omitted DECT/cordless phone exposure, which might have led to an underestimation of the reported results.

CEFALO study, 4 countries 2011: This study on brain tumour risk and mobile phone use among children aged 7-19 years in Sweden, Denmark, Norway and Switzerland also showed consistent increasing risks. There was for instance a statistically significant 115% increased risk in children with the longest time since first subscription (>2.8 years) with an increasing trend with cumulative duration of subscription and time since first subscription (calculations based on operator-recorded use. Other relevant data could be found in Table 2 of the Cefalo study. Most other results were not statistically significant, but as the Interphone, the Cefalo omitted to include total cordless phone use causing an underestimation of the risks.

Hardell et al., Sweden 2013: These five case-control studies consistently and clearly show that mobile phone and cordless phone use increase the risk for malignant brain tumours. The most recent publications, including cases with glioma diagnosed between 1997- 2003 and 2007-2009, showed a clear dose-response effect, i.e., higher cumulative use in hours of wireless phones (mobile or cordless phones) gives a higher risk with statistically significant trends. The results showed a 2.0 times increased risk for those who had used a wireless phone for more than a total of 1486 hours. This corresponds to approximately 30 minutes or more of wireless phone use per day over a period of 10 years. The study clearly showed an increased risk for glioma associated with use of both mobile and cordless phones, a risk that increased significantly with latency and cumulative use. A particularly high risk was found for use of the third generation (3G; UMTS) mobile phones, with a 4.1 times statistically significant increased risk for glioma with a latency of >5-10 years. The Hardell group also showed that the risk associated with the use of 3G phones increased with 4.7% per 100 h cumulative use and with 15.7% per year of latency, more than for GSM phones. An earlier study was the first to investigate the risk to the young and found that the risk was increased by 400-700% for those who started to use a mobile before the age of 20 years.¹

¹ 1. **Hardell L, Carlberg M, Hansson Mild K.** Use of mobile phones and cordless phones is associated with increased risk for glioma and acoustic neuroma. *Pathophysiology* 2013;20:85-110. Epub 2012 Dec 21. 2. **Carlberg M et al.** Meningioma patients diagnosed 2007-2009 and the association with use of mobile and cordless phones, *Environ. Health* 2013;12:60, doi:10.1186/1476-069X-12-60. Epub Jul 19, 2013 3. **Hardell L. et al** Pooled analysis of case-control studies on acoustic neuroma diagnosed 1997-2003 and 2007-2009 and use of mobile and cordless phones. *Int J Oncol.* 2013;43:1036-1044.¹ Epub 2013 Jul 22. 4. **Hardell et al.** Case-control study of the association between malignant brain tumors diagnosed 2007-2009 and mobile and cordless phone use. *Int J Oncol.* 2013;43:1833-1845. Epub 2013 Sep 24 5. **Hardell L, Carlberg M.** Using the Hill viewpoints from 1965 for evaluating strengths of evidence of the risk for brain tumors associated with use of mobile and cordless phones. *Rev Environ Health* 2013;38:97-106. doi: 10.1515/reveh-2013-0006

Coureau et al./CERENAT study France (2014): The study was carried out in 2004–2006. It found statistically significant increased risks: OR=2.89 (almost 3 times higher risk) for glioma, OR=2.57 (2,57 times higher risk) for meningioma in the heaviest user group, i. e. when considering life-long cumulative use exceeding 896 hours. Risks were higher for glioma, tumours in the most exposed area (temporal) and for occupational and urban mobile phone use. The study also analysed the risks in relation to the intensity of use. 15 hours of mobile phone use a month (corresponding to 30 minutes a day) increased the glioma risk 4 times.

Carlberg M, Hardell L, 2014: Decreased survival of glioma patients with astrocytoma grade IV (glioblastoma multiforme) associated with long-term use of mobile and cordless phones. *Int J Environ Res Publ Health* 2014;11:10790-10805. <http://www.mdpi.com/1660-4601/11/10/10790>

Hardell L, Carlberg M, 2014: Mobile phone and cordless phone use and the risk for glioma – Analysis of pooled case-control studies in Sweden, 1997-2003 and 2007-2009, *Pathophysiology*. 2014 Oct 29. pii: S0928-4680(14)00064-9. doi: 10.1016/j.pathophys.2014. <http://www.pathophysiologyjournal.com/article/S0928-4680%2814%2900064-9/pdf>

Acoustic Neuroma

Interphone, international 13 countries study (2011): Statistically significant increased risk for acoustic neuroma (OR = 2.79) for users with more than 1640 cumulative hours of use, and with censoring at 5 years before the reference date.

Hardell, Sweden (2013): Increased risk for acoustic neuroma from use of digital type wireless phones (2G, 3G mobile phones and cordless phones) increasing to OR = 8.1 with latency >20 years. For total wireless phone use, the highest risk was calculated for the longest latency time >20 years: OR= 4.4.

Sato et al. Japan (2011): A significantly increased risk was identified for mobile phone use for >20 min/day on average, with risk ratios of 2.74 at 1 year before diagnosis, and 3.08 at 5 years before diagnosis.

Moon et al. South Korea. This study found that the location of tumours might coincide with the side where the user most frequently put her or his mobile phone. Tumour volume in acoustic neuroma patients and estimated cumulative hours showed a strong correlation and regular mobile phone users had tumours of a markedly larger volume than those of non-regular users, thus there is a possibility that mobile phone use may affect tumour growth.

Pettersson et al., Sweden (2014). Statistically significantly increased risk (OR = 1.67) for acoustic neuroma associated with cordless phone with an estimated total of over 900 hours of use. Mobile phone use was associated with an increased risk of OR = 1.46 (95 % CI = 0.98–2.17) for more than 680 hours of use.

Cohort studies

Frei et al. 2011, Denmark: This update of a Danish cohort, first published in 2001, reported no increased risks of tumours of the central nervous system, based on some 400 000 mobile phone subscribers whose health were compared to the rest of the Danish population. However, the study contains several major flaws:

1. It included mobile phone subscribers in Denmark between 1982 and 1995 but excluded the heaviest users, the 200 000 corporate users of mobile phones. They were thus treated as if they did not use a mobile phone, and ended up in the control group supposed to be unexposed. (In 1999, an average

corporate user in Sweden used a mobile phone for outgoing conversations six times more than an average private user.)²

2. All users with a subscription that started after 1995 were also excluded. The study treated everyone who started to use a cell phone after 1995, as if they had never used one, although the number of cell phone users in Denmark more than doubled between 1995 and 1997.³ Those people could have accumulated 10 or 11 years of mobile phone use by the end of 2007, the cut-off date for this study. But these potentially heavy users also ended up in the "unexposed" control group.
3. All users of cordless/DECT phones, as well as non-subscribers using the mobile phone were also treated as unexposed.
4. In addition there was no analysis by laterality (the side where the phone is held in relation to the position of the tumour) and actual exposure data was lacking.⁴

These weaknesses make the conclusions of the SCENIHR final opinion on the Danish cohort invalid according to epidemiology theory: *"A study can never be taken as an indication that the exposure is lacking effect if the exposure assessment has been inflicted with non-differential misclassification."*⁵ The critique from international epidemiology experts has consequently been severe:

*"This study has several design flaws that should prevent the authors from any conclusions concerning the impact of mobile phone use on the development of brain cancer."*⁶ *In my opinion the Danish Cohort study should be retracted"*⁷

Research Professor Dariusz Leszczynski, Radiation and Nuclear Safety Authority, Finland

*"The most severely biased study among all studies published so far"*⁸

Professor Michael Kundi, Medical University of Vienna

"No conclusions could be drawn from the Danish cohort study on mobile phone subscribers due to considerable misclassification in exposure". Why IARC did not use the Danish cohort as evidence when it evaluated EMF RF as possibly carcinogen.⁹

Benson et al. 2013, United Kingdom: This cohort study of 791 710 women was established for other purpose during 1996-2001. Only baseline data collected at one time between 1999 and 2005 was used, without questions separating heavy users from light users. Cell phone use was based on the answers to one or two questions posed at the time the women were recruited for the study: "About how often do you use a mobile phone?" "Never, less than once a day, or every day?" Those who did use a cell phone were also asked "for how long?" At the end of the study in 2009, participants were asked two more questions about their cell phone use, but the answers were never used. The study did not consider cordless/DECT phone exposure.

This methodology flaws, especially the lacks of information about the mobile phone use, prone exposure misclassification and make assessment extremely difficult. Several epidemiologists have reacted. It is *"not possible to draw any scientifically reliable conclusions"* based on these results.¹⁰

² PTS: Svensk Telemarknad 2003. Page 69 and 72. Available online <https://www.pts.se/sv/Dokument/Rapporter/Telefoni/2004/Svensk-telemarknad-2003---PTS-ER-200424/>

³ Microwave News: The Danish Cohort Study: The Politics and Economics of Bias, November 3, 2011 <http://microwavenews.com/DanishCohort.html>

⁴ Söderqvist, F., Carlberg, M., Hardell, L., 2012b, 'Review of four publications on the Danish cohort study on mobile phone subscribers and risk of brain tumours', Rev. Environ. Health, (27/1) 51–58

⁵ Ahlbom et al: Interpretation of "negative" studies in occupational epidemiology; Scand J Work Environ Health 1990

⁶ BMJ Rapid Response Frei et al. 2011; <http://www.bmj.com/content/343/bmj.d6387/rapid-responses>

⁷ The scientist, "Scientific Peer Review in Crisis The case of the Danish Cohort", the Scientist <http://www.the-scientist.com/?articles.view/articleNo/34518/title/Opinion--Scientific-Peer-Review-in-Crisis/>

⁸ Microwave News: The Danish Cohort Study: The Politics and Economics of Bias, November 3, 2011

⁹ Quote from European Environment Agency "[Late lessons from early warnings](#) 2, ch 21, p12, referring to Robert Baan et al, *Carcinogenicity of radiofrequency electromagnetic fields*, Lancet Oncol., (12/7) 624–626.

¹⁰ Epidemiology: [ICNIRP hijacked WHO](#) Dariusz Leszczynski

Benson et al. reported a statistically significant *reduction* of risk of glioma by 23% (R.R. 0.77 (0.62–0.96) in the group with 10 years or more of mobile phone use.¹¹ This highly unlikely result assumably reflects the weakness of the study.

Incidence trends of glioma

The latency of glioma can be several decades. Yet, there are already worrisome statistics showing increased incident trends, supporting the evidence linking mobile phone radiation to head tumours.

De Vocht, International 2013: This ecological study analysed national age-adjusted cancer incidence rates obtained from the GLOBOCAN 2008 resource and combined with data from the United Nations Development Report and the World Bank list of development indicators. The only exogenous risk factor consistently associated with a higher cancer incidence was the penetration rate of mobile/cellular telecommunications subscriptions, although other factors were highlighted. According to these ecological results the latency period is at least 11–12 years, but probably more than 20 years. It shows a clear association between national penetration of cellular telecommunications subscriptions and higher incidence of brain and nervous system cancers.

Danish cancerregisteret (2012): Danish cancer statistics show that the incidence of tumours in the brain and the central nervous systems in Denmark increased by 41.2% in men and 46.1% in women between 2003 and 2012.¹²

Swedish cancer register: A scientific study shows that the statistics on glioma trends in Sweden are not reliable, as the incidence rate seems to be underreported. (Barlow 2009) An officer at the Swedish cancer register confirms that many inoperable brain tumours only diagnosed by image technology are not reported to the registry.¹³

Animal study

A new larger animal study has confirmed previous results on mobile phone radiation tumour promoting effects, thus providing further evidence to support the consistent findings in case-control studies of increased risk of brain tumours in mobile phone users:

"Numbers of tumors of the lungs and livers in exposed animals were significantly higher than in sham-exposed controls. In addition, lymphomas were also found to be significantly elevated by exposure. A clear dose-response effect is absent. We hypothesize that these tumor-promoting effects may be caused by metabolic changes due to exposure. Since many of the tumor-promoting effects in our study were seen at low to moderate exposure levels (0.04 and 0.4 W/kg SAR), thus well below exposure limits for the users of mobile phones, further studies are warranted to investigate the underlying mechanisms." Mobile phones exposure limit: 2W/kg.

Our findings may help to understand the repeatedly reported increased incidences of brain tumours in heavy users of mobile phones." Lerchl et al ¹⁴

¹¹ Benson et al.: Authors' response to: The case of acoustic neuroma: comment on mobile phone use and risk of brain neoplasms and other cancers; *Int. J. Epidemiol.* (2013) doi: 10.1093/ije/dyt186

¹² Statens Serum Institut: Cancerregisteret 2012 page 8

<http://www.ssi.dk/Sundhedsdataogit/Registre/~media/Indhold/DK%20-%20dansk/Sundhedsdata%20og%20it/NSF/Registre/Cancerregisteret/Cancerregisteret%202012.ashx>

Swedish Radiation Protection Foundation's comment on preliminary opinion of SCENIHR, April 16th 2014.

http://www.stralskyddsstiftelsen.se/wp-content/uploads/2014/08/scenihr_swerad_16042014_final.pdf

¹³ Phone communication, Mona Nilsson, Strålskyddsstiftelsen with Åsa Klint from Swedish Cancer Registry, 2011.

¹⁴ Reference: Lerchl. et al. 2015 (Germany) Tumor promotion by exposure to radiofrequency electromagnetic fields below exposure limits for humans; [Biochemical and Biophysical Research Communications](#) Available online 6 March 2015

3. A rational assessment of the available literature

There is, by the end of year 2014, consistent epidemiological evidence that mobile phone use increases the risk for head tumours, notably the most malignant type of brain tumour, glioma.

Increasing evidence from laboratory studies, which show that mobile phone radiation causes oxidative stress and DNA damage in cells, supports the epidemiological findings. Studies have found that the production of reactive oxygen species (free radicals) that cause oxidative stress is involved in RF exposure-induced DNA base damage.

The evidence is strong since there is a consistency in the results from different studies. The results for glioma are similar in the Swedish Hardell studies and in the IARC international Interphone study (2010, 2011). These results were crucial when the IARC working group of 30 world leading experts classified mobile phone radiation as "possibly carcinogenic" to humans, class 2B in 2011.

Since the IARC classification, new results have been published that confirm previous results. Two new Swedish studies (Hardell 2013 and 2014), reporting results on cases with more than 20 years of use for the first time, provide strong evidence of an association between malignant brain tumours, acoustic neuroma and mobile phone as well as cordless phone use. A French study (Coureau 2014) also shows that mobile phone use significantly increases the risk, further confirming previous results. In addition to these findings, there is a study showing increased risk of glioma among children and adolescents who use a mobile phone (Cefalo 2011), and furthermore several studies showing increased risk of tumours on the acoustic nerve (acoustic neuroma).

In conclusion all available major epidemiological case control studies show that mobile phone use increases the risk for malignant brain tumours and acoustic neuroma. In addition a recent animal study confirmed previous results on mobile phone radiation tumour promoting effects. (Lerchl 2015)

The studies indicating a risk outnumber the no-risk studies and are fully consistent. They are also superior in regard to quality. *"Subgroup meta-analyses by methodological quality of study revealed a significant positive association in the high-quality studies (odds ratio_1.09; 95% CI, 1.01 to 1.18), whereas a negative association was observed in the low-quality studies"*.¹⁵

Seven recent Hardell studies and one Interphone-related study were classified "high-quality" (score of > 7) in this meta-analysis. Quality criteria also made the IARC working group rely on Interphone and studies from the Hardell group when classifying radiofrequency EMF "possibly carcinogen".

Another meta-study draws similar conclusions. *"Blind protocols, free from errors, bias, and financial conditioning factors, give positive results that reveal a cause-effect relationship between long-term mobile phone use or latency and statistically significant increase of ipsilateral head tumour risk, with biological plausibility. Non-blind protocols, which instead are affected by errors, bias, and financial conditioning factors, give negative results with systematic underestimate of such risk."*¹⁶

It could be noted that eminent court and insurance company experts also find the scientific body of evidence linking EMF to serious health risks more solid than the conclusions of biased groups such as SCENIHR.¹⁷ Other distinguished international actors like the European Environment Agency and the Parliamentary Assembly of the Council of Europe have made similar assessments.

¹⁵ Myan et al Mobile Phone Use and Risk of Tumors: A Meta-Analysis 2009 J Clin Oncol 27:5565-5572

¹⁶ Mobile phones and head tumours: the discrepancies in cause-effect relationships in the epidemiological studies - how do they arise? Angelo G Levis, Nadia Minicuci, Paolo Ricci, Valerio Gennaro and Spiridione Garbisa

¹⁷ Links to articles of court cases and insurance issues <http://www.radiationresearch.org/component/content/article?id=26>
<http://www.claimsjournal.com/news/national/2013/08/21/235352.htm>

4. Analysis of SCENIHR's assessment

Despite consistent evidence in the scientific literature linking mobile and cordless phone use to head tumours, the SCENIHR EMF working group did not find any significant risks.

“Overall, the epidemiological studies on mobile phone RF EMF exposure do not show an increased risk of brain tumours”.

Scenhir 2015, page 5

This performance was made possible by the following manoeuvres:

- Massively highlight a few flawed studies that did not find any risks
- Emphasize less relevant subsets of results that did not show any risks
- Dismiss a vast majority of the available studies: the ones that show risks
- Rely on selective brain tumour incidence trend data. Ignore worrisome statistics.
- Bury the scientific controversy.

Highlighted studies with known flaws

When evaluating brain tumour risks from mobile phone use, the SCENIHR mainly relies on the two cohort studies that are seriously biased towards finding no increased risks due to substantial exposure misclassification, the Danish cohort and Benson et al. The flaws described above (see "Cohort studies" p.4.) are well-known. The European Commission expert group still chooses to largely refer to these low quality studies.

If the reason is to be found in the studies' industry-friendly no-risk results, it could be worth stressing that Danish mobile phone operators initially funded the Danish cohort study: Tele Denmark Mobil and Sonafon. It also received funding by IEI and the Danish Cancer Society. (The source of money for the IEI is not known.) This financial bias adds potential flaw to the study as Mobile phone companies widely benefit from no-risk result.

Several scientific studies confirm that funding could influence the outcome.¹⁸

"Negative results produced by studies funded by the cell-phone companies are affected by many biases and flaws, giving rise to a systematic underestimate of the risk. On the contrary, studies producing positive results - without errors and financial conditioning - indicate a cause/effect relationship supported by biological plausibility." Levis et al

It is also noteworthy that SCENHIR's Joachim Schüz is a co-author of the two flawed studies.

Emphasized less relevant subsets of results that did not show any risks

The SCENHIR group has chosen to refer to several subsets of results, which can be easily shown to lack of relevance.

¹⁸ Myan et al Mobile Phone Use and Risk of Tumors: A Meta-Analysis 2009 J Clin Oncol 27:5565-5572

Mobile phones and head tumours: the discrepancies in cause-effect relationships in the epidemiological studies - how do they arise? Levis et al, Environ Health. 2011 Jun 17;10:59, Huss A. et al. (2007). Source of funding and results of studies of health effects of mobile phone use: systematic review of experimental studies. Environ Health Perspect.; 115(1):1-4

Interphone: The Interphone study defined "regular users" as people using a mobile phone at least once a week during at least 6 months and "heavy users" as those using their mobile 30 minutes a day for 10 years or <1H for 1-5 years (1640 h of total use). SCENIHR still uses these terms in 2015 when 30-60 minutes a day is a common use and "once a week" is a very low use. It is therefore misleading to present the increased risk as attributable to "heavy users" as in the SCENIHR report. Interphone also presents an "over-all" no-risk result for small and "regular users". Obviously, there is nothing reassuring about this subset of results as it only touches very small users. A Public Health-oriented risk assessment would rather emphasize the increased risk for persons using the mobile phone more than 30 minutes a day.

Cefalo: The SCENIHR final opinion claims that the Cefalo study shows no increased risks. This is only partly true as proofed by several tables in the study. There is for example a statistically significant 115% increased risk in children with the longest time since first subscription with an increasing trend. Would not a committee interested in protecting the health of children have highlighted this and other examples of increased OR (see above, page 4)?

SCENIHR also claims that *"Use of cordless phones showed no increased OR... not even in the group of highest cumulative use."* A thorough analysis of the study would have shown that this conclusion is false, or even scientific fraud. The Cefalo scientists *only included the first three years of cordless phone use*. By omitting several years of exposure they likely ignored the children with the highest cumulative use.

The study was funded by a Swiss mobile industry foundation and Dr Joachim Schüz, responsible for the SCENIHR chapter on epidemiology, was one of the scientists also behind this study.

Dismissed a vast majority of the available studies

The SCENIHR final opinion 2015 dismisses major scientific studies and downplays the consistency and strength of the results on brain tumour risks in relation to mobile phone use.

In complete contradiction to other scientific analyses, SCENIHR consistently invents ways to raise doubt - not only on studies showing increased risk for brain tumour from mobile phone use - but on all studies repeatedly showing harmful effects on cells, animals, plants and humans.

It was Dr Joachim Schüz who pursued this mission in the epidemiological group, according to one of the group members, Kjell Hansson-Mild. It could be added that Dr Hansson-Mild is the only member who has presented an official objection to this practice, according to our knowledge. Consequently other group members seem to have given their tacit agreement.

"Joachim Schüz, who did the evaluation of the epidemiological studies on mobile phone use and brain tumour risk intentionally disregarded key epidemiological studies that provide evidence of risk for glioma and acoustic neuroma from mobile and cordless phone use. He was not interested in taking relevant studies, see below, into the text."¹⁹

Dr. Kjell Hansson-Mild, SCENIHR

Further down, Dr Hansson-Mild details five studies by the Hardell group, in which Dr Schüz "was not interested". Epilogue: business as usual. John F. Ryan did not consider Dr Hansson-Mild's revelations more than DG Sanco usually considers calls for transparency and pluralism from the civil society.

¹⁹ Dr. Kjell Hansson-Mild, SCENIHR, Email to John F. Ryan, DG Sanco, April 24, 2014

Relied on selective brain tumour incidence trend data. Ignored worrisome statistics

The SCENIHR opinion states that the brain tumour incidence trends do not mirror an increased brain tumour risk from the extended use of mobile phones. This is not correct and it is striking that SCENIHR once again cherry-picked data supporting the no-risk hypothesis without checking their accuracy.

The SCENIHR report notably relies on Swedish statistics, omitting to mention that they don't seem to be reliable as the brain tumour incidence is presumably underreported to the Swedish Cancer Registry (Barlow 2009, Åsa Klint, Swedish Cancer Registry).

The De Vocht study shows a clear association between national penetration of cellular telecommunications subscriptions and higher incidence of brain and nervous system cancers, consequently it does not support the no-risk thesis. This study was dismissed by the SCENIHR group.

Danish cancer statistics are also worrisome, showing that the incidence of tumours in the brain and the central nervous systems increased by 41.2% in men and 46.1% in women between 2003 and 2012. SCENIHR chose to sidestep this information by picking another study mixing data from Denmark, Sweden and other Nordic countries.²⁰ This way the disturbing Danish statistics were neutralised by the underreported Swedish trends. Co-author: Dr Joachim Schüz.

No effort was made by the authors of the SCENIHR opinion to break down these mixed trends, although Dr Schüz has clear insight in the increasing trend in Denmark due to his longstanding activities within the Danish Cancer Society. Instead the SCENIHR group exploited the confusion between different Nordic data, using it to presume that the incidence data "*...provides evidence that common use of mobile phones is unlikely to be associated with an increased risk of those brain tumours*". The experts further state that this "*was confirmed*" by the flawed Danish cohort study, which they pretend "*rules out*" the increased risks shown in the case-control studies.

Might these conclusions illustrate the saying "*Lies, damned lies, and statistics*"?
See above page 7 for more details and references related to brain tumour incidence trends.

Buried the actual scientific controversy.

Dr Joachim Schüz who "*intentionally disregarded key epidemiological studies that provide evidence of risk for glioma*", (see quote above, page 10 from Dr Hansson-Mild) seems to have efficiently discarded all competing analyses and opinions. "*He clearly stated that the epidemiological part was solely his responsibility to write and furthermore he himself was to decide what to include.*"²¹

Kjell Hansson-Mild, SCENIHR

This is perfectly reflected in the final report where no minority view is expressed, even though a substantial part of the scientists in this area do not share SCENIHR's conclusions. Most of them have made their point clear by their scientific work and elsewhere, including as contributors to the SCENIHR public consultations. Their research and conclusions are thus perfectly known by SCENIHR, but have never been taken into consideration. The Bioinitiative group of scientists made for example a comprehensive comment on the preliminary text. A few quotes:

²⁰ Deltour et al. 2011: Mobile phone use and incidence of glioma in the Nordic countries 1979-2008: consistency check; Epidemiology. 2012 Mar;23(2):301-7. doi: 10.1097/EDE.0b013e3182448295.

²¹ Dr. Kjell Hansson-Mild, SCENIHR, Email to John F. Ryan, DG Sanco, April 24, 2014

"Sections on brain tumors are flawed. The report consistently ignores or dismisses published scientific studies that report positive findings at exposure levels below ICNIRP standards (Exhibit B-Hardell). The SCENIHR conclusion that evidence for glioma is weaker now than in 2009 is unjustified, and can only be reached by excluding key scientific studies that reach the opposite conclusion."

Genetic effects (damage to DNA) from radiofrequency radiation are reported in 65% (or 74 of 114 studies); and 83% (or 49 of 59 studies) of extremely-low frequency studies (Exhibit E). These studies span the 2006/2007 to 2014 time period and many are overlooked. They should be included in the Final Opinion. They will likely change the conclusion of the Preliminary Opinion that skirt the issue of whether genotoxicity is sufficiently established as a cause of possible health effects (Sections 3.5.2.5, 3.7.2.5, and 3.11.3).

Bioinitiative Working Group Comments on 2014 SCENIHR Preliminary Opinion on Potential Health Effects of EMF <http://www.bioinitiative.org/potential-health-effects-emf/>

Their exhaustive and relevant disclosure was completely neglected in the final opinion. It was not even considered as a "minority opinion". The input of SCENIHR member Kjell Hansson-Mild was also entirely rejected.

"According to my opinion, the epidemiological section in SCENIHR has fatal flaws that need to be corrected. I object to the way Ryan has used my name as a contributor in this process. Now my name and reputation is used to justify a process that I have not had the possibility to influence but instead been isolated and blocked from meaningful input. Major revision of the epidemiological section regarding content and conclusions is needed."²²

The inclusion of a scientist who has participated in the Bioinitiative group and co-signed papers with Lennart Hardell could be interpreted as an opening. However, sociological research has shown how difficult it can be for an individual to make his voice heard in a group.²³ The public consultation seems also to be a dilution, as diverging opinions from scientists and NGO representatives have not been taken into consideration.

Discussion

Instead of being a meaningful and constructive forum for contradictory debate, the SCENIHR assessment was designed to express one single viewpoint. In the case of mobile phone use and brain tumours this has been skilfully orchestrated by Dr Schüz. For anyone who wanted SCENIHR to promote research that downplays health risks his appointment as responsible for the section on epidemiology was an excellent choice.²⁴ As his research is a gold mine in this aspect (Danish Cohort, UK Cohort, Interphone, Cefalo, Nordic incidence trends) he was well armed to put the no-risk hypothesis forward and to dismiss competing conclusions.

However, this is not only a question about competing scientific viewpoints. The methods described in this paper include corporate financed studies and successfully designed attempts, including flaw, to wipe out crucial scientific findings on mobile phone use and brain tumours, presumably because they disturb strategic military, corporate and economic interests depending on wireless techniques.

The question is if the collateral damage for democracy and Public Health is worth it. This also raises the question of accountability: who can be hold responsible for the consequences of the current risk denial?

²² Dr. Kjell Hansson-Mild, SCENIHR, Email to John F. Ryan, DG Sanco, April 24, 2014

²³ Barthe Y L'expertise scientifique vue de l'intérieur : le groupe de travail « Radiofréquences » de l'Afsset (2008-2009), Environnement risques & santé, vol. 13 n° 1, 2014-01, pp. 28-39

²⁴ Comment on a former appointment of Dr Schüz <http://electromagnetichealth.org/electromagnetic-health-blog/has-the-fox-been-put-in-charge-of-guarding-the-hen-house/>

References

This list is not exhaustive.

Coureau et al. 2014: Mobile phone use and brain tumours in the CERENAT case-control study: *Occup Environ Med* doi:10.1136/oemed-2013-101754 bmj.com/content/early/2014/05/09/oemed-2013-101754

Hardell et al. 2013: Case control study of the association between malignant brain tumours diagnosed between 2007 and 2009 and mobile and cordless phone use: spandidos-publications.com/10.3892/ijo.2013.2111

Hardell et al. 2014: Pooled analysis of case-control studies on acoustic neuroma diagnosed 1997-2003 and 2007-2009 and use of mobile and cordless phones; *Int J Oncol.* 2013 Oct;43(4):1036-44. doi: 10.3892/ijo.2013.2025. Epub 2013 Jul 22; <http://www.ncbi.nlm.nih.gov/pubmed/23877578>

IARC cancer classification of radiofrequency fields as possibly carcinogenic class 2B, 2011 thelancet.com/journals/lanonc/article/PIIS1470-2045%2811%2970147-4/fulltext

Interphone 2010 ncbi.nlm.nih.gov/pubmed/20483835

Interphone 2011 ncbi.nlm.nih.gov/pubmed/21659469

Hardell, Carlberg: Using the Hill viewpoints from 1965 for evaluating strengths of evidence of the risk for brain tumors associated with use of mobile and cordless phones; *Rev Environ Health* 2013; ncbi.nlm.nih.gov/pubmed/?term=Using+the+Hill+viewpoints+from+1965++hardell

Barlow et al.: The completeness of the Swedish Cancer Register _ a sample survey for year 1998; *Acta Oncologica*, 2009; 48: 27_33

Sato et al. 2011; A case-case study of mobile phone use and acoustic neuroma risk in Japan. *Bioelectromagnetics.* 2011 Feb;32(2):85-93. doi: 10.1002/bem.20616. Epub 2010 Oct 28. <http://www.ncbi.nlm.nih.gov/pubmed/21225885>

Moon et al. 2013; Association between vestibular schwannomas and mobile phone use; *Tumour Biol.* 2014 Jan; 35(1): 581–587. Published online 2013 Aug 27. doi: [10.1007/s13277-013-1081-8](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3907669/) <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3907669/>

Pettersson et al. 2014; Long-term mobile phone use and acoustic neuroma risk; *Epidemiology.* 2014 Mar;25(2):233-41. doi: 10.1097/EDE.0000000000000058.

Frei et al. 2011: Use of mobile phones and risk of brain tumours: update of Danish cohort study; *BMJ* 2011; 343 doi: <http://dx.doi.org/10.1136/bmj.d6387>

Benson et al. 2013: Mobile phone use and risk of brain neoplasms and other cancers: prospective study; *Int. J. Epidemiol.* (2013) 42 (3): 792-802. doi: 10.1093/ije/dyt072