

Mobile phones and children's brain tumour risks: Researchers found the highest risk in Sweden –but dismissed the risks based on underreported Swedish brain tumour incidence rates

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The “reassuring” results of a study on brain tumour risks associated with mobile phone use among children and adolescents were published on July 28, 2011 in the international press. However, the “reassuring” conclusion was not based on the study’s case-control data, as suggested in the [widely spread press-releases](#), but solely on brain cancer incidence trends from the Swedish cancer registry. The latter is questioned for being underreported.

Contrary to the message cabled out massively on July 28th to the international press from the CEFALO scientists, [the study](#) on the possible link between brain tumours and mobile phone use among children showed an increased risk for children and adolescents who used a mobile phone regularly, especially those who had had a mobile phone subscription for the longest time, as reported [in a previous article](#) on the subject.

These significant findings from the four participating countries (Sweden, Denmark, Norway and Switzerland) considered neither by the CEFALO scientists Marin Rösli from Switzerland, Joachim Schuz from Denmark, Tore Tynes from Norway and Maria Feychting from Sweden, nor by the Journal of the National Cancer Institute (JNCI). Their press-releases were built exclusively on the contradictory interpretation that the increased risks were reassuring, a message that the Swedish Karolinska Institute even stressed in the headline.

- Results are reassuring because they are non-significant and thus are compatible with chance, Martin Rösli, the coordinator of CEFALO and a board member of the industry funded Swiss Research Foundation on Mobile communication, explained the strange interpretation of the systematic increased risks throughout the study.

But there were significant increased risks based on operator recorded data. Children with longest subscriptions were at 115% increased risks of brain tumours.

Conclusion not from study results

The CEFALO scientists instead consulted the Swedish Cancer registry which became the basis for the reassuring message, not the study itself. The Swedish cancer registry does not show an increasing trend during the same period, rather trends are decreasing. Repeatedly during my conversation with Martin Rösli, he returns to the argument that the study results cannot be true, since brain tumours are not increasing in Sweden.

Why did you only look at Swedish data and not Norwegian for instance?

- At the time we looked, only Swedish statistics were available, Rösli replied.

The same argument is found in the published article: *“Most recent data from among the four participating countries were available from Sweden”*

”We saw the highest risk for Sweden”

The explanation of the one-sided interest in Swedish brain tumour data is changed after I confronted Rööslı with the fact that Norwegian and Danish cancer data until 2008 was available at the time when the scientists assessed the Swedish data. The Norwegian data shows contrary to the Swedish data increasing trends.

- We used the Swedish data, because we found the highest risk estimate for Sweden. For Norway we found an $OR < 1$ and thus did not feel that we should look at these cancer rates. Moreover, Norway is small, Rööslı then argues.

Questioned reliability

The reliability of the Swedish Cancer Registry data on brain tumours has been questioned. There are strong indications that all tumours are not being reported to the Registry from the hospitals, a fact that is highlighted in a report from the Swedish National Board of Health and Welfare¹. The report concludes that “*the underreporting was high for soft tissue, nervous system sites*”. There were as a striking example, more unreported than reported cases from country hospitals in 1998.

- The incidence curves are not similar to those in several other Nordic countries, Åsa Klint, researcher at the Swedish Cancer Register at the National Board of Health and Welfare, explains.

According to Åsa Klint the underreporting of brain tumours may be due to lack of resources at the hospitals. Some cases are only reported to the Cancer Registry after a pathological analysis is done, when an exact diagnosis can be established.

- Numerous brain tumours are never sent to pathological analysis. We have not been able to work up proper routines to address this problem. Many hospitals seem to have difficulties to find the time to report brain tumours to the registry, she continues.

The influence of reporting routines

In Norway the number of brain tumours reported to the Cancer Registry has increased during the last decade, while the contrary is seen in Sweden. The trends in brain tumour registries are heavily influenced by local routines for reporting tumours to the registries according to a report on trends in brain cancer in Nordic countries published in 2010, coauthored by Åsa Klint.²

According to Tom Borge Johannesen at the Norwegian Cancer Registry, it is hard to draw conclusions about mobile phone brain tumour risks from the cancer registries since data can be influenced by changes in diagnostic methods and reporting routines. In Norway, improved routines were implemented around year 2000, a fact that may explain the increase observed in Norway. But Johannesen does not exclude the possibility of a real increase of the number of cases of brain tumours in Norway. Norway has better reporting of brain tumours than Sweden he concludes.

Conclusions from something else

¹ Barlow et al. The completeness of the Swedish Cancer Register - a sample survey for year 1998; Acta Oncologica, 2009; 48:1,27 — 33

² Bray et al.: Trends in survival of patients with cancers of the brain and nervous system, thyroid, eye, bone and soft tissues in the Nordic countries 1964-2003 followed up until the end of 2006: Acta Oncologica, 2010;49: 673-693

Oncologist Lennart Hardell, who in his [own study on brain tumour risks of mobile phone use](#) among adolescents several years ago found that teenagers were at a five fold increased risk for brain tumours, is critical to the CEFALO scientists conclusions drawn from the cancer registries:

- They claim to have done one thing, but conclusions are drawn from something else. Cancer trends tell us nothing about children's exposure and other factors can influence the number of cases in the registries, as reporting routines for example.

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