For Reference – Some Studies Showing Cell Tower Health Impacts

“Epidemiological Evidence for a Health Risk from Mobile Phone Base Stations”
--Analysis of 4 studies were from Germany, and 1 each from Austria, Egypt, France, Israel, Poland, Spain
--7 studies showed altered neurobehavioral effects near cell towers
--3 studies showed increased cancer incidence
--Effects occurred < 500 meters from cell towers

blog.cat/gallery/17983/17983-97698.pdf
--the proportion of newly developing cancer cases is significantly higher among patients who live within 400 meters of a cell phone transmitter.
--relative risk of getting cancer increased by 200% after 5 years operation of the transmitter
--early age of cancer diagnosis

Similarly found that within 350 meters of cell phone antennas there was:
-- 300% increased incidence of cancer among men and women
-- 900% cancer increase among women alone
-->4x risk of cancer after 3-7 yrs exposure <350 meters
--early age of cancer diagnosis

Inhabitants living nearby mobile phone base stations were shown to be at risk for developing neuropsychiatric problems (headache, memory changes, dizziness, tremors, depressive symptoms, sleep disturbance), and some changes in the performance of neurobehavioral functions. Exposed inhabitants exhibited a significantly lower performance than controls in one of the tests of attention and short-term auditory memory [Paced Auditory Serial Addition Test (PASAT)]. Also, the inhabitants opposite the station exhibited a lower performance in the problem-solving test (block design) than those under the station.

--Found a significant relationship between some cognitive symptoms and measured power density; highest for headaches. Perceptual speed increased, while accuracy decreased insignificantly with increasing exposure levels. There was no significant effect on sleep quality.

Dode et al, “Mortality by neoplasia and cellular telephone base stations in the Belo Horizonte municipality, Minas Gerais state, Brazil”, Science of the Total Environment, Volume 409, Issue 19, 1 September 2011, Pages 3649–3665
Cancer deaths in center of city:
-- within 100m 4.342/1000 *(35% increase if within 100 meters)*
-- >1000m 3.212/1000


Santini et al found significant health effects on people living within 300 meters of mobile phone base stations. Fatigue, sleep disturbance, headaches, concentration problems, depression, memory problems, irritability, cardiovascular problems, hearing disruption, skin problems, dizziness, etc.

-- Showed significant decrease in volunteers’ ACTH, cortisol, thyroid hormones, prolactin for young females, and testosterone levels from RF exposures from both mobiles and cell towers.

Levitt & Lai, “Biological Effects from Exposure to Electromagnetic Radiation Emitted by Cell Tower Base Stations and Other Antenna Arrays”, Environmental Reviews, 2010
-- Over 100 citations, approximately 80% of which showed biological effects near towers
-- Built case for ‘setbacks’ and need for new exposure guidelines reflecting *multiple and cumulative* exposures

Sage & Pall, January 2014, Presentation to Washington State - Symptoms and RF levels in Various Cell Tower Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>RFR Level</th>
<th>Reported Health Impacts</th>
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<tbody>
<tr>
<td>Nastro (2001)</td>
<td>0.01 – 0.11 W/cm²</td>
<td>Fatigue, headaches, sleep problems</td>
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<tr>
<td>Thomas (2008)</td>
<td>0.005 – 0.04 W/cm²</td>
<td>Headache, sleep and concentration difficulties</td>
</tr>
<tr>
<td>Honeich (2010)</td>
<td>0.003 – 0.02 W/cm²</td>
<td>Headache, anotonia, concentration difficulties</td>
</tr>
<tr>
<td>Thomas (2010)</td>
<td>0.003 – 0.03 W/cm²</td>
<td>Behavioral problems in children, adolescents</td>
</tr>
<tr>
<td>Moller (2010)</td>
<td>0.005 W/cm²</td>
<td>Sleep disturbances</td>
</tr>
<tr>
<td>Nuel (2006)</td>
<td>0.01 – 1.0 W/cm²</td>
<td>Headache, sleep, concentration problems, other neurological problems.</td>
</tr>
<tr>
<td>Koide (2009)</td>
<td>0.01 – 1.0 W/cm²</td>
<td>No adverse effects</td>
</tr>
<tr>
<td>Backer (2017)</td>
<td>0.006 – 0.01 W/cm²</td>
<td>Significant impact on stress hormones, children and chronically ill adults most at risk</td>
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<tr>
<td>Oberfield (2004)</td>
<td>0.01 W/cm²</td>
<td>Sleep and concentration disruption, fatigue, and cardiovascular problems.</td>
</tr>
<tr>
<td>Zwanenburg (2003)</td>
<td>0.13 W/cm²</td>
<td>Anxiety, hostility, impaired cognition</td>
</tr>
<tr>
<td>Averdijk (2012)</td>
<td>0.3 – 1.0 W/cm²</td>
<td>Sperm damage (DNA fragmentation, low motility) from laptop use wireless mode (on top)</td>
</tr>
</tbody>
</table>

Carpenter, D. O. “Human disease resulting from exposure to electromagnetic fields”, Reviews on Environmental Health, **Volume 28, Issue 4, Pages 159-172**. Summarizes excessive RF radiation increases risk for cancer, male infertility and neurobehavioral abnormalities.

-- Notes by Grahame Blackwell: Found significant effects on wellbeing, according to a number of internationally-recognised criteria (including headaches, muscle fatigue/pain, dizziness etc) from 3G mast emissions well below accepted 'safety' levels (less than 1/25,000th of ICNIRP guidelines). Those who had previously been noted as 'electrosensitive' under a scheme in that country were shown to have more pronounced ill-effects, though others were also shown to experience significant effects.

Oberfeld, Portoles, Navarro et al, “The Microwave Syndrome—Further Aspects of a Spanish Study”, Public Health Department Salzburg, Austria, University Hospital La Fe. Valencia, Spain, Department of Applied Physics, University Valencia, Spain, Foundation European Bioelectromagnetism (FEB) Madrid, Spain, Presented at an International Conference in Kos (Greece), 2004

Notes by Grahame Blackwell: This study found significant ill-health effects in those living in the vicinity of two GSM mobile phone base stations. They observed that: “The strongest five associations found are depressive tendency, fatigue, sleeping disorder, difficulty in concentration and cardiovascular problems.” As their conclusion the research team wrote: "Based on the data of this study the advice would be to strive for levels not higher than 0.02 V/m for the sum total, which is equal to a power density of 0.0001 µW/cm² or 1 µW/m², which is the indoor exposure value for GSM base stations proposed on empirical evidence by the Public Health Office of the Government of Salzburg in 2002."

Usfie, Israel (as shown in Documentary "Full Signal"). Cancer cases only found in vicinity of new cell towers with very few exceptions. See the film to hear about the study which was conducted by a local doctor who noticed increasing cancers following installation of cell towers on a ridge line in the city. [Website link]

Naila Study, Germany (November 2004), Report by researchers (five medical doctors) “Following the call by Wolfram König, President of the Bundesamt für Strahlenschutz (Federal Agency for radiation protection), to all doctors of medicine to collaborate actively in the assessment of the risk posed by cellular radiation, the aim of our study was to examine whether people living close to cellular transmitter antennas were exposed to a heightened risk of taking ill with malignant tumors. The basis of the data used for the survey were PC files of the case histories of patients between the years 1994 and 2004. While adhering to data protection, the personal data of almost 1,000 patients were evaluated for this study, which was completed without any external financial support. It is intended to continue the project in the form of a register.

The result of the study shows that the proportion of newly developing cancer cases was significantly higher among those patients who had lived during the past ten years at a distance of up to 400 metres from the cellular transmitter site, which has been in operation since 1993, compared to those patients living further away, and that the patients fell ill on average 8 years earlier. In the years 1999-2004, i.e. after five years' operation of the transmitting installation, the relative risk of getting cancer had trebled for the residents of the area in the proximity of the installation compared to the inhabitants of Naila outside the area."