For Reference – Some Studies Showing Cell Tower Health Impacts

Khurana, Hardell et al., Int. J Occup. Envir Health, Vol 16(3):263-267, 2010
"Epidemiological Evidence for a Health Risk from Mobile Phone Base Stations"
http://www.ncbi.nlm.nih.gov/pubmed/20662418
--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

H. Eger at al.,*"The Influence of Being Physically Near to a Cell Phone Transmission Mast on the Incidence of Cancer"* (Umwelt·Medizin·Gesellschaft 17,4 2004).
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

Wolf R, Wolf D, (April 2004) ***"Increased incidence of cancer near a cell-phone transmitter station"***, International Journal of Cancer Prevention, 1(2) April 2004
http://www.powerwatch.org.uk/news/20050207_israel.pdf
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

Abdel-Rassoul G *et al*, (March 2007) "***Neurobehavioral effects among inhabitants around mobile phone base stations"*,** Neurotoxicology. 2007 Mar;28(2):434-40
http://www.ncbi.nlm.nih.gov/pubmed/16962663
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.

Hutter HP *et al*, (May 2006) "***Subjective symptoms, sleeping problems, and cognitive performance in subjects living near mobile phone base stations***", Occup Environ Med. 2006 May;63(5):307-13
http://www.ncbi.nlm.nih.gov/pubmed/16621850
--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
http://www.sciencedirect.com/science/article/pii/S0048969711005754

Cancer deaths in center of city:
--within 100m 4.342/1000 **(35%increase if within 100 meters)**
-- >1000m 3.212/1000

Santini R *et al*, (September 2003) "*Symptoms experienced by people in vicinity of base stations: II/ Incidences of age, duration of exposure, location of subjects in relation to the antennas and other electromagnetic factors*", Pathol Biol (Paris). 2003 Sep;51(7):412-5
http://www.ncbi.nlm.nih.gov/pubmed/12948762

Santini R *et al*, (July 2002) "*Investigation on the health of people living near mobile telephone relay stations: I/Incidence according to distance and sex"*, Pathol Biol (Paris) 2002 Jul;50(6):369-73
http://www.ncbi.nlm.nih.gov/pubmed/12168254

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.

Eskander EF *et al*, (November 2011) "*How does long term exposure to base stations and mobile phones affect human hormone profiles?*", Clin Biochem. 2011 Nov 27. [Epub ahead of print] http://www.ncbi.nlm.nih.gov/pubmed/22138021
--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 1: RFR Levels in Cell Tower Studies Reporting Adverse Health Impacts
(RFR levels from cell towers are similar or lower than for WI-FI devices)

Study	RFR Level	Reported Health Impacts
Navarro (2003)	0.01 – 0.11 uW/cm2	Fatigue, headaches, sleeping problems
Thomas (2008)	0.005 – 0.04 uW/cm2	Headaches, sleep and concentration difficulties
Heinrich (2010)	0.003 – 0.02 uW/cm2	Headaches, irritation, concentration difficulties
Thomas (2010)	0.003 – 0.02 uW/cm2	Behavioral problems in children, adolescents
Mohler (2010)	0.005 uW/cm2	Sleep disturbances
Hutter (2006)	0.05 – 1.0 uW/cm2	Headache, sleep, concentration problems, other neurological problems.
Kundi (2009)	0.05 – 1.0 uW/cm2	Review of 14 studies on cell tower-level RFR at and above 0.05 – 1.0 uW/cm2 impairs health.
Buchner (2012)	0.006 – 0.01 uW/cm2	Significant impact on stress hormones; children and chronically ill adults most at risk.
Oberfeld (2004)	0.01 uW/cm2	Sleep and concentration disruption, fatigue and cardiovascular problems.
Zwamborn (2003)	0.13 uW/cm2	Anxiety, hostility, impaired cognition
Avendano (2012)	0.5 – 1.0 uW/cm2	Sperm damage (DNA fragmentation, low motility) from laptop in wireless mode (in lap)

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.

Netherlands Organization for Applied Scientific Research (TNO), Study for the Netherlands Ministries of Economic Affairs, Housing, Spatial Planning and the Environment and Health, Welfare and Sport, ***"Effects of Global Communications System Radio-Frequency Fields On Well Being and Cognitive Function of Human Subjects With and Without Subjective Complaints"*,** (September 2003)
-- *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/cni2 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. www.FullSignalMovie.com

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 meters from the cellular transmitter site, which bas 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."