

## NATIONAL AND INTERNATIONAL REVIEWS

The debate about whether mobile phone use can cause brain tumors persists, although within the past three months several respected scientific bodies issued similar opinions, saying that the exposure to radio-frequency electromagnetic fields (RF EMF) from mobile phones over a period of less than 10 years is not associated with an increased risk of brain tumors. These include standing committees of the International Commission on Non-Ionizing Radiation Protection (ICNIRP, one of the prime sources of recommended exposure limits), Spain’s Comité Científico Asesor en Radiofrecuencias y Salud [Scientific Advisory Committee on RF and Health], Germany’s Mobile Telecommunication Research Program, the Health Physics Society, and the Committee on Man and Radiation (a technical committee of the Engineering in Medicine and Biology Society (EMBS) of the Institute of Electrical and Electronics Engineers (IEEE)). The question of whether such tumors could arise with more than 10 years of use cannot be answered as yet because large numbers of people have not used mobile phones for that period of time. In addition, the question of whether children are more susceptible to effects from mobile phones than adults remains a concern, according to these opinions.

In accord with that position, the European Commission’s Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) released an opinion in July on remaining research needs regarding RF EMF and potential health effects. They recommended that future research focus on a forward-tracking study in adults; verification of “preliminary but important findings” such as modulation-specific effects and EEG patterns and sleep; and multidisciplinary research involving children. The first two avenues were assigned an especially high priority.

Meanwhile, some scientists and citizens continue to press their view that not only brain tumors but many other health effects can be linked to mobile phone use. In August, the EM Radiation Research Trust issued an online report from 8 EMF activists who urged journalists “to report on the independent science” and “to make the dangers of cellphone use known to the public.” In September, the nonprofit Environmental Working Group issued a report on mobile phones and health in which they raised concerns about the potential risks from cell phone use, including brain cancer, salivary gland tumors, behavioral problems, migraines, and vertigo. And in September, a representative of the Environmental Health Trust (EHT) testified before a US Senate Subcommittee and called the current state of mobile phone health research a “violation of a basic human right.” The EHT representative suggested that to fund future cell phone research in the US, a 3-year, \$1-per-year fee be imposed on cell phone users.

## STANDARDS, GUIDELINES, AND PRECAUTION

In September, a petition directed to the Prime Minister in the UK expressed concerns about the health effects of Wi-Fi and requested the removal of Wi-Fi installations in schools. In the government’s response, the opinion of the Health Protection Agency – which has stated that Wi-Fi is safe for use in schools – was upheld.

## NOTABLE SCIENTIFIC DEVELOPMENTS

Periodically, experts will publish a review of the scientific literature in their area along with their own conclusions drawn from the data. In the past three months, an updated review of the scientific literature on provocation studies of individuals claiming to have electromagnetic hypersensitivity (EHS) was published by three British scientists. As in the past, they concluded that no robust evidence could be found to support the theory that EMF is responsible for the reported symptoms. In addition, two Canadian researchers reviewed the literature of the effects of RF EMF on genetic changes in cells. They did not find sufficient support for the hypothesis that RF EMF can induce effects at levels below the exposure limits, although they pointed out areas needing more research.

A European Commission project directed at studying potential effects of UMTS signals on hearing published its results from research conducted at seven independent laboratories and concluded that “UMTS short-term exposure at the maximum output of consumer mobile phones does not cause measurable immediate effects on the human auditory system.” A previous project had found no effects on hearing from GSM signals.

In 2003 a group of Swedish researchers had reported observing alterations in the blood-brain barrier of rats exposed to mobile phone signals below the exposure limits. This result was troubling because this barrier prevents toxins from reaching the brain. In the past quarter, two independent research groups – one from Japan and one from France – attempted to replicate these results but could not.

In July, Australian researchers reported that several indicators of stress in human spermatozoa were enhanced by exposure to RF EMF at levels approximating those associated with mobile phones. The effects exhibited a clear dose dependence, they said; that is, the effect increased with increasing exposure. The authors warned that men of reproductive age should not keep mobile phones below waist level.

In an unusual study, US researchers worked with transgenic mice destined to develop Alzheimer’s-like cognitive impairment, exposing them to whole-body RF EMF for two one-hour sessions per day at levels similar to cell phone exposures. They reported, contrary to their expectations, that the exposure appeared to protect young mice from the disease and also reversed symptoms in older mice.

Lastly, in a study not related to EMF but of interest to the EMF scientific community because of misconduct alleged in a recent European project in which genetic effects of EMF exposures were reported, a scientist in Scotland conducted a meta-analysis of studies in which scientists were asked about the prevalence of scientific misconduct. The results indicated that about 2% admit to having fabricated, falsified, or modified data and 17% say they have seen this done by others.