

In 2004, when WHO organized a workshop on children's sensitivity to electromagnetic fields, very few studies on radiofrequency fields were available. With the recent increase in mobile phone use among children and adolescents, WHO has identified studies on health effects in this age-group as a high priority research area. There are no empirical data supporting the notion that children and adolescents are more susceptible to RF exposure, but the number of studies is still relatively small. There are a few cross-sectional studies on well-being, cognitive effects and behavioral problems, and some cohort studies, mainly of maternal use of mobile phones during pregnancy. Cancer outcomes have been studied in relation to environmental RF exposure, e.g. from transmitters, and only one study on mobile phone use in children and adolescents and brain tumor risk has been published. Several methodological limitations need to be taken into consideration when interpreting the findings of the epidemiological studies. The cross-sectional design does not allow determination of the temporal sequence of exposure and outcome, and for several outcomes there is a large potential for reversed causality, i.e. that the outcome causes an increased RF exposure rather than the opposite. Biases such as recall errors in self-reported mobile phone use, lack of confounding control, e.g. of other aspects of mobile phone use than RF fields, trained behaviors, and pubertal development, makes causal interpretations impossible. Future studies need to include prospectively collected exposure information, incident outcomes, and proper confounding control. Monitoring of brain tumor incidence trends is strongly recommended.