

**EFRT Comments on the paper:  
Increased Incidence of Cancer Near a Cell-Phone Transmitter Station,  
by R. Wolf and D. Wolf, Int. J. of Cancer Prevention, Vol. 1, N. 2, April 2004  
March 11, 2005**

**EFRT Comment 4/2005**

***General remarks***

The EFRT was recently asked for opinions about the health effects of telephone masts (see EFRT comment of December 16, 2004). EFRT concluded that to date, the balance of the evidence indicates that the possibility of a health risk due to base station exposure to electromagnetic fields in the RF range is unlikely when the exposure levels are below the limits recommended in 1999/519 EC. Consequently, this applies to people living near base stations, where exposure levels are typically only very small fractions of the recommended limits, while the limits are exceeded only when very close to the antenna (around 2 m).

***Specific comments***

The paper by Wolf & Wolf reports a cluster of eight cancer cases observed in a population of 622 persons living around a single mobile telephony base station. The reporting of the study is limited. In particular, it is unclear whether the incidence rates and comparisons have been adjusted for age, which is an important determinant of cancer risk.

This study, like most geographical studies of the clustering of cancer near point sources of potential environmental risk, is an “ecological” or “geographical correlation study”, in which information on exposure is available only in terms of its presence or absence (here the presence of a base station). Such studies are subject to a number of methodological problems, which limit their usefulness for evaluating the effects of low levels of EMF. It is difficult to ensure an adequate choice of the geographical areas to be compared: the choice of boundaries of the study regions (here based on referral areas for particular clinics) may exaggerate or diminish the apparent significance of an association. Information on levels of exposure, on confounding factors and population movements is not generally available. Furthermore, such studies are subject to the “ecological fallacy”, the failure of group level data to properly reflect individual level associations. In most instances therefore, a “negative” geographical correlation study (i.e. a study in which no increase in risk is observed) cannot be interpreted to mean that no risk exists, and can only provide an upper bound for the risk estimate. A “positive” geographical correlation study, on the other hand, may be difficult to interpret because of potential biases and confounding.

It is therefore not possible to draw any conclusion from this study concerning the existence, or not, of an association between the observed cancer cases and RF exposure from the base station.

A scientific evaluation of the possible carcinogenic effects of RF necessitates the conduct of well-planned “analytic epidemiological studies”, in which information is available on each individual in the study population, rather than at the group level, and which are therefore immune to a number of the limitations of ecological studies, in particular the ecological fallacy. Investigations of possible carcinogenic effects associated with the low RF exposure levels around base stations, however, even within large-scale and very carefully planned analytical epidemiological studies, are unlikely to be feasible or informative because of difficulties of characterising relevant exposure levels from the many changing sources in the environment.

### ***European Commission Project Activities***

The ongoing INTERPHONE study will soon be completed. This study was designed to assess whether there is a relation between RF exposure emitted by mobile telephones (exposures which are generally much higher than those originating from mobile telephone base stations) and the risk of tumours of the brain and salivary glands (organs that receive the highest exposure from the phones). The study will include over 7000 cancer cases from 13 countries and will therefore provide important information about the existence, and if relevant, the magnitude of a possible cancer risk from RF exposures. The EFRT is aware of a number of studies underway in different countries to evaluate the feasibility of informative epidemiological studies of health risks associated with RF exposure from base stations. EMF-NET will be co-organizing, together with the COST 281 Action and WHO EMF Project, a workshop on base-station exposures and health consequences, in June 2005.

(See also EFRT Comment of December 16, 2004.)