



Mobile Phones and Health

Although we've been using mobile phones since the mid-Eighties, popularity has increased dramatically in recent years. While in 1996 there were four million users, today there are more than 40 million in the UK.

In Jersey there are approximately 70,000 users out of a population of 89,000. The extensive use of mobile phones has been accompanied by public debate about possible adverse effects on human health.

In December 2000, the Government published Sir William Stewart's report, which found that mobiles did cause 'subtle biological changes' in the body, but their significance is not yet known. Acting on the report, the Government invested £7.4 million into 15 further studies. The findings should be known by 2005. Ref: www.iegmp.org.uk

Sources of Exposure

Mobile phones work by emitting and receiving radio waves ie radio frequency (RF). The new style digital system, which replaced the analogue system is seen as safer. But scientists still don't know what the long term health effects are. Experts are focusing their research on what the rapidly pulsed blast of radiation does whenever we make or receive calls.

There are two direct ways by which health could be affected as a result of exposure to RF radiation. These are by thermal (heating) effects caused mainly by holding mobile phones close to the body, and as a result of possible non-thermal effects from both phones and base stations.

The concerns relate to the emissions of RF radiation from the phones (the handsets) and from the base stations that receive and transmit the signals. For the general population, the levels of exposure arising from phones held near to the head or other parts of the body are substantially greater than whole-body exposures arising from base stations. In both cases levels of exposure generally reduce with increasing distance from the source. For mobile phones, exposures will be principally to the side of the head for hand-held use, or to the parts of the body closest to the phone during hands-free use.

For base station emissions, exposures of the general population will be to the whole body but normally at levels of intensity many times less than those from hand-sets. Base stations communicate with mobile phones within a defined area or "cell".

As well as mobile phone base stations, there are a large number of other RF emitting sources in our environment, including antennas for radio, television and paging. Exposures of individuals to RF radiation from these sources will depend upon their proximity and may be above those from mobile phone base stations, although still well below guidelines.

Current Guidelines on Acceptable Levels of Exposure to Radio frequency Radiation

Government has in place national guidelines established by the National Radiological Protection Board (NRPB) on the maximum levels of exposure to RF radiation emitted from mobile phones, base stations and other sources ("the NPPB guidelines"). These guidelines were established in 1993 when mobile phone technology was in its infancy. The guidelines were based on a comprehensive review of the scientific literature carried out by NRPB, a statutory body, which advises Government

on radiological issues related to health.

In 1998 the International Commission on Non-Ionizing Radiation Protection (ICNIRP) published its own guidelines covering exposure to RF radiation. These were based on essentially the same evidence as that used by NRPB, and for workers the limits on exposure are similar. However, under the ICNIRP guidelines, the maximum levels of exposure of the public are about five times less than those recommended for workers. The reason for this approach was the possibility that some members of the general public might be particularly sensitive to RF radiation. However, no detailed scientific evidence to justify this additional safety factor was provided.

The ICNIRP guidelines for the public have been incorporated in a European Council Recommendation (1999), which has been agreed in principle by all countries in the European Union (EU), including the UK. In Germany the ICNIRP guidelines have been incorporated in law. Both the NRPB and ICNIRP guidelines are based on the need to avoid known adverse health effects. At the time these guidelines were drawn up, the only established adverse effects were those caused by the heating of tissues.

Main Conclusions on the Possible Effects of Mobile Phone Technology on Human Health

Despite public concern about the safety of mobile phones and base stations, rather little research specifically relevant to these emissions has been published in the peer-reviewed scientific literature. This presumably reflects the fact that it is only recently that mobile phones have been widely used by the public and as yet there has been little opportunity for any health effects to become manifest. There is, however, some peer-reviewed literature from human and animal studies, and an extensive non-peer-reviewed information base, relating to potential health effects caused by exposure to RF radiation from mobile phone technology.

The balance of evidence to date suggests that exposures to RF radiation below NRPB and ICNIRP guidelines do not cause adverse health effects to the general population.

There is now scientific evidence, however, which suggests that there may be biological effects occurring at exposures below these guidelines. This does not necessarily mean that these effects lead to disease or injury, but it is potentially important information and we consider the implications below.

There are additional factors that need to be taken into account in assessing any possible health effects. Populations as a whole are not genetically homogeneous and people can vary in their susceptibility to environmental hazards. There are well-established examples in the literature of the genetic predisposition of some groups, which could influence sensitivity to disease. There could also be a dependence on age. Therefore it is not possible at present to say that exposure to RF radiation, even at levels below national guidelines, is totally without potential adverse health effects, and that the gaps in knowledge are sufficient to justify a precautionary approach. **Ref: Independent Expert Group on Mobile phones Summary and Recommendations 2000**

Precautions to take when using the phone

When using the phone a radiation surge occurs when you first connect, so hold the phone away from your head until the call connects. Keep it as far from the head as possible for the duration of the call.

Hands free kits and shields

A report in 2001 by the Department of Trade and Industry suggested hands-free kits did reduce emissions. However, a Consumers Association report said the kits acted like an aerial and channelled three times as much radiation towards the head. Manufacturers disputed this. Shields cut some emissions but not all.

Children using mobile phones

With regard to children using mobile phones the Stewart Report believes they are because they're

still growing. Also, children's skulls are thinner than those of adults, so they may be more susceptible to radiation. Parents are advised to encourage children to use phones only for essential calls and to keep them short.

Pregnancy and mobile phones

There's no conclusive evidence, but as scientists believe radiation is absorbed, keep your phone away from the unborn baby.

Use of mobile phones while driving

It is a specific offence in Jersey to use a mobile phone whilst driving. Use a hands free kit.

Texting

The Stewart Report says evidence suggests there is less radiation from a text than a voice message. But Professor Lawrence Challis of Nottingham University believes there are other texting dangers. By holding the phone in your lap, you may expose other organs, especially reproductive organs, to radiation.

Further information

The United Kingdom Department of Health has also produced a leaflet to advise people about the possible health risks associated with the use of mobile telephones and the precautionary measures that can be taken. This leaflet can be found by visiting www.doh.gov.uk/mobilephones and copies are available from every mobile dealer.

SAR Values (www.sarvalues.com)

It is possible to measure how much radio wave energy your body receives from each model of mobile phone. This is called the specific absorption rate or SAR. There is now a European standard method for measuring the SAR and manufacturers are now making this information available. To view your mobile handset manufacturer's website, click on the relevant link:

www.nokia.com

www.motorola.com

www.ericsson.com

www.trium.net

For further information on radio-frequency radiation please contact:

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