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Phone: +36 1 464 8240
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OCCUPATIONAL EXPOSURE TO ELECTROMAGNETIC FIELDS AND HEALTH SURVEILLANCE OF WORKERS

Fabriziomaria GOBBA[1], Alberto MODENESE[1]*

[1]Department of Biomedical, Metabolic and Neural Sciences, University of Modena and Reggio Emilia, Modena, Italy
[*]Corresponding author. E-mail: fabriziomaria.gobba@unimore.it

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Introduction.
Electromagnetic fields (EMF) exposure is a diffused occupational risk: a large number, possibly the majority, of workers are potentially exposed. The opportunity of an effective Health Surveillance (HS) of such workers is recognized and in some Countries is mandatory. Nevertheless, specific criteria for an effective HS of EMF exposed workers are hitherto scarcely defined.

Materials and Methods.
In the European Union an obligation for the HS of EMF exposed workers is provided by the Directive 2013/35/EU, also providing Exposure Limits Values (ELVs) for occupational exposures. Considering the legal obligation introduced by this Directive, an outline of the main criteria to be considered for an appropriate HS of EMF exposed workers is discussed.

Results.
The HS is aimed to protect and to promote the workers' health. The EU Directive specifically addresses the prevention of EMF direct biophysical effects (as stimulation of muscles, nerves or sensory organs, or thermal effects) and indirect effects (as interference). Conversely, long-term effects are not addressed as scientific evidence of a causal relationship is considered inadequate. Occupational EMF-exposures lower than the ELVs can be usually considered adequately protective against the direct effects, but the occurrence of groups of "workers at particular risk" (e.g. subjects with active medical devices as pacemakers, and also pregnant women) must be considered, and adequate prevention provided. To date no laboratory tests or specific medical investigations can be considered adequate in terms of validity and performance.

Conclusions.
The HS of occupational EMF exposed workers is mainly aimed at evidence the occurrence of direct biophysical and indirect effects of EMF, while, at least in EU Countries, long term effects are not addressed. Another aim of HS is to screen conditions possibly inducing an increased susceptibility ("workers at particular risk"), and to adopt appropriate preventive measures.