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# Synthesis of the Report *Mortality due to leukemias, non-Hodgkin's lymphomas and tumors of the Central Nervous System in Spain. 2001-2020*

The *Health and Environment Strategic Plan 2022-2026 (PESMA)* (1) was approved in November 2021 by the Interterritorial Council of the National Health System. Its *First Action Program (2022-2023)* (2) includes in one of its lines of intervention the description of incidence, prevalence rates, mortality and morbidity of diseases that, supposedly, could be associated with exposure to low-frequency electromagnetic fields (EMF). EMF are used in electricity transmission lines, transformers and household appliances and with radio frequencies (mobile telephony, base stations, Wi-Fi, etc.).

The monitoring of trends in mortality rates of leukemias, non-Hodgkin's lymphomas and Central Nervous System (CNS) tumors is an indirect indicator, which allows assessment of whether there is any association with the use and exposure to electromagnetic fields (low frequencies and radio frequencies). EMF were classified by the International Agency for Research on Cancer (IARC) as a type 2b carcinogen, however, the published evidence does not suggest a causal relationship.

At the same time, the Ministry of Health participates in the NextGEM Project: *Next Generation Integrated Sensing and Analytical System to Monitoring and Assessing Radiofrequency Electromagnetic Field Exposure and Health* (3). NextGEM is a 4-year project funded by the European Union. It started on July 1<sup>st</sup>, 2022 and aims to ensure a healthy working and living environment for EU citizens when using current and future telecommunication technologies based on electromagnetic fields (EMF).



◀ In compliance with the responsibilities on the control of EMF exposure, the Ministry of Health requested the National Center for Epidemiology (CNE), of the Institute of Health Carlos III (ISCIII), to carry out a study to analyze the evolution of trends in mortality rates of diseases that some observational studies have associated with exposure to EMF levels. Exposure to low frequency EMF levels of 0.3-0.4  $\mu$ T has been associated with higher rates of leukemias (mainly in childhood and adolescence), and exposure to radiofrequencies, especially with cell phone use, with increased incidence rates of CNS tumors.

The CNE has published its report entitled: *Mortality due to leukemia, non-Hodgkin's lymphomas and Central Nervous System tumors in Spain. 2001-2020* (4).

The report shows the evolution of the mortality rates of these diseases and of benign and malignant CNS tumors in a period that covers practically all the time necessary to assess the impact of exposure to radiofrequency EMF. This should be taken into account, since the deployment of mobile telephony in Spain began in the mid-1990s.

To carry out the study, the CNE used mortality data provided by the National Statistics Institute, and calculated standardized mortality rates for men and women, in four age groups and for each autonomous community or city.

The conclusions of the study indicate that mortality from hematological neoplasms shows a statistically significant downward trend during the studied period. This decrease is slightly greater in women and, in relative terms, in the younger population.

The study observed that mortality from CNS neoplasms has remained stable during the analyzed period. Finally, it is stated that in the last 20 years, in which exposure to radiofrequency waves has been increasing in the general population, there has been no increase in mortality due to these tumors in Spain.

The publication of this study is an example of a successful collaboration between the Public Health authorities of the Ministry of Health and the CNE (ISCIII), which provides objective information on the control of an environmental factor that has generated concern about its effects on health in some sectors of society. (1)

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3. NextGEM (*Next Generation Integrated Sensing and Analytical System for Monitoring and Assessing Radio-frequency Electromagnetic Field Exposure and Health*). Available at: <https://www.nextgem.eu/>

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