

PRACTICAL GUIDE FOR PHYSICIANS

Clinical management of patients with
Electrohypersensitivity (EHS) and/or
Multiple Chemical Sensitivity (MCS)

English reference edition

Based on the ARIEM practical guide for physicians
Association for International Research on EHS and MCS

Clinical note. This edition is an English translation and professional reformatting of the supplied source guide. It presents the source authors' clinical framework and reported observations; it is not a substitute for independent clinical judgment, current local guidance, or evidence appraisal.

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Abbreviations. EHS: electrohypersensitivity. EMF: electromagnetic fields. SICEM: syndrome of intolerance to electromagnetic fields. RF: radiofrequency. MCS: multiple chemical sensitivity. SIOC: syndrome of intolerance to chemical odors. Oxidative stress: an imbalance between free-radical production and the body's ability to neutralize it.

Editorial and preamble

This practical guide for physicians is intended to inform and support the clinical management of patients reporting electrohypersensitivity (EHS) and/or multiple chemical sensitivity (MCS). It is based on scientific work cited internationally and on the authors' experience with a series of more than 2,000 patients assessed clinically, including general and neurological examinations, laboratory tests, and cerebral imaging.

EHS is reported as being associated with MCS in approximately 25% of cases in the source guide. MCS corresponds here to SIOC, the syndrome of intolerance to chemical odors, described in France as a distinct condition by Françoise Conso, then president of the French Society of Occupational Health. Because the two clinical-biological entities may coexist, the source guide recommends that assessment of EHS also consider MCS.

The guide is written in the spirit of the Hippocratic Oath, placing the patient at the center of the physician-patient relationship. It emphasizes careful listening to symptoms while avoiding premature dismissal or stigmatization.

About the source organization

ARIEM (Association for International Research on EHS and MCS) is described as an independent association bringing together researchers, scientists, and experts working in close connection with the World Health Organization. Its establishment was published in the French Official Journal on 24 May 2022, with statutes filed at the Paris police prefecture.

Historical context

William Rea (1935-2018) is credited in the source guide with the first comparative description of EHS in 1991. The term and condition were recognized by WHO in 2005, after WHO had individualized idiopathic environmental intolerance attributed to electromagnetic fields (IEI-EMF) in 2004.

MCS was described as early as 1962 by the American physician Theron Randolph (1906-1995) as increased sensitivity to multiple chemical products. The source guide states that MCS was also recognized by WHO in 1996 and was the subject of an international consensus in Atlanta in 1999.

Definitions

EHS. The source guide defines EHS as a pathological condition characterized by clinical symptoms perceived in the presence of electromagnetic fields, including mobile phones, Wi-Fi, DECT, high-voltage lines, and smart meters.

MCS. MCS is defined in the source guide as the occurrence of clinical symptoms perceived in the presence of multiple chemical products.

Both conditions are presented as illnesses characterized by increased environmental sensitivity and are distinguished from allergy. The source guide notes that WHO has stated that evidence and a recognized pathophysiological mechanism were lacking; it further states that subsequent publications have addressed these gaps. This is the position reported by the source and should be interpreted in light of current evidence and local guidance.

Proposed pathophysiological mechanisms

The source guide distinguishes the patient's heightened sensitivity to electromagnetic fields and/or chemicals from the environmental causes proposed to initiate the conditions. It proposes that artificial, polarized and pulsed EMF, and artificial chemicals acting on the naso-limbic system, may contribute to a neuro-inflammatory and vascular cascade.

Proposed sequence	Clinical / biological implication
Environmental inducing factors	Artificial EMF and/or chemical exposures
Microglial, astrocyte and mast-cell activation	Reactive gliosis and inflammatory signaling
Oxidative and/or nitrosative stress	Cellular stress and mediator release
Histamine and other mediator release	Amplification of inflammatory response
Blood-brain barrier opening	Potential passage of circulating inflammatory cells
Cerebral hypoperfusion	Hypoxia / vascular contribution
Limbic and thalamic involvement	Neuroinflammation, with capsulothalamic predominance

The source guide presents this as a proposed model rather than a diagnostic test. It highlights the limbic system and thalamus as principal structures in the proposed process.

Symptoms and cohort observations

The source guide reports findings from a cohort of more than 2,000 patients with EHS and/or MCS. It describes predominantly neurological symptoms. Most symptoms are non-specific; the source emphasizes that their combination, reproducibility, and relationship to exposures are clinically informative.

Symptom / finding	Reported frequency	Clinical comment
Headache	90%	May resemble a classic migraine state
Dysesthesias	80%	Common accompanying symptom
Sleep disturbance	80%	Frequently reported
Chronic fatigue	80%	Frequently reported
Concentration and memory problems	70%	Cognitive complaints
Pseudo-vertigo	70%	Non-specific vestibular-type complaint
Myalgias	50%	Pain symptom
Balance disturbance	35%	Neurological symptom
Neck stiffness	30%	Musculoskeletal / neurological complaint
Trismus	30%	Jaw muscle involvement
Tremor	20%	Neurological symptom
Skin lesions (objective finding)	20%	Observed on clinical examination
Paralytic ictus (objective finding)	15%	Observed on clinical examination
Romberg sign (objective finding)	5%	Observed on clinical examination

Pattern clues in the source guide: ipsilateral ear pain and tinnitus occurring on the side where a mobile phone is used are described as favoring EHS. ENT symptoms, particularly naso-laryngeal and sometimes bronchial burning, are described as favoring MCS.

Clinical diagnostic criteria

Before ordering additional tests or proceeding to a general and neurological examination, the source guide recommends a complete interview and detailed history of onset and circumstances, including possible repeated exposure to low-intensity EMF and/or chemical products.

Criterion	Operational considerations
1. Exclusion of known disease	Symptoms are not explained by a known condition. Consider, among others, brain tumor, Alzheimer disease or another neurodegenerative psycho-neuropathy, macrophagic myofasciitis, chronic fatigue syndrome, Gulf War illness in adults, autism in children, and—when EHS/MCS is considered—allergy or autoimmune disease.
2. Reproducibility and avoidance response	Symptoms recur in the same patient and regress or disappear when the incriminated causes (EMF and/or chemicals) are avoided.
3. Chronic, recognizable course	Symptoms are chronic and show a broadly similar pattern from one patient to another. Low-intensity sources may include both EMF and chemicals when EHS and MCS coexist; this association is diagnostically relevant.

A diagnosis should be based on the whole clinical picture, not on any single symptom or laboratory result. The source guide explicitly notes that normal routine imaging does not invalidate the diagnosis.

Laboratory examinations and biomarkers

The source guide describes testing intended to document oxidative stress, low-grade inflammation, possible blood-brain barrier dysfunction, autoimmunity, and—especially—a urinary sulfatoxymelatonin deficit. The frequencies below are the source guide's reported cohort observations, not population prevalence estimates.

Marker / test	Reported finding	Frequency	Interpretive note in source guide
Urinary sulfatoxymelatonin / creatinine ratio	Decreased	90%	Reduced synthesis and/or increased consumption of melatonin
Histamine	Increased blood histamine	40%	Mast-cell inflammation; possible cerebral hypoperfusion / BBB opening
S100B	Increased blood S100B	30%	Possible cerebral hypoperfusion / BBB opening
Anti-P0 antibodies	Present	15%	Autoimmune reaction
Vitamin D	Profound decrease	70%	Less specific; metabolic abnormality (?)
IgE	Increased	15%	Less specific; humoral immunity / allergy (?)

Additional tests mentioned: Hsp proteins, nitrotyrosine (NTT) in blood, and urinary neurotransmitters. The source guide describes these as less common but feasible in some medical laboratories. It provides laboratory links for collection, sampling, assay, and interpretation; clinicians should verify current availability and validity before ordering.

Imaging and Doppler

The source guide states that conventional brain CT and MRI are normal in these patients and that this does not invalidate the diagnosis. It describes possible hypovascularization of the middle cerebral artery by transcranial Doppler (TCD) as the essential imaging examination, together with possible abnormalities on functional MRI, cerebral scintigraphy, or PET.

Reported middle cerebral artery TCD values

Measure	Reference value	Below normal: right / left / both	Above normal: right / left / both
Pulsatility index	> 0.60	8.47-9.82% / 9.09-10.33% / 6.06-10.77%	- / - / -
Resistance index	< 0.75	- / - / -	12.12-14.74% / 9.10-13.59% / 42.14-51.51%
Mean velocity	62 +/- 12	3.03-8.27% / 5.74-12.12% / 59.91-72.73%	1.38-3.72% / 8.32-12.4% / 6.06-11.26%

The source guide also illustrates hypofixation in selected cortical and thalamic regions on scintigraphy and dysfunction in selected territories on functional MRI. These findings should be interpreted by appropriately trained specialists and in the context of the clinical examination.

Therapeutic protocol and conclusion

The source guide proposes that treatment be determined according to biological abnormalities identified in the patient.

Intervention	Source-guide protocol / rationale
Correct deficiencies	Correct vitamin deficiencies, particularly vitamin D and B-group vitamins (B1, B2, B6, B9, B12).
Antihistamines	Consider when blood histamine is elevated.
Immun'Age® 4.5 g	One sachet morning and evening for 2-3 months, described in the source as being used for antioxidant, microvascular revascularization, and immune-modulating properties.
Insomnia support	Circadin 2 mg at bedtime; repeat if nocturnal awakening, as stated in the source guide.
Complementary options	L-carnosine and omega-3 fatty acids.

The source guide reports a favorable response in more than half of cases, with regression or disappearance of symptoms and normalization of biological and radiological examinations. It states that this response does not occur in all cases. Treatment is to be combined systematically with prevention and avoidance of EMF and/or chemicals where possible.

Prescribing note: medication, supplement choice, dose, duration, contraindications, interactions, and monitoring must be assessed by the treating clinician under applicable local standards. Brand names and doses above reproduce the supplied source guide.

Prevention

The source guide recommends precautionary reduction or avoidance of relevant exposures where possible. It acknowledges that absolute proof of causation is not stated, while presenting a number of arguments for a possible contribution of EMF and chemicals to symptoms.

Argument presented in source guide
MCS emerged after widespread dissemination of multiple chemicals, and EHS after diffusion of wireless technologies.
The worldwide impact of MCS and EHS is presented as inconsistent with a purely psychological or psychiatric origin, although secondary psychological effects may develop over time.
A nocebo effect may coexist but is not presented as sufficient to explain reported somatic abnormalities such as low-grade inflammation, blood-brain barrier opening, nitroso-oxidative stress, and autoimmunity.
Artificial EMF may interact with endogenous electrical fields involved in cellular functions of the brain, heart, and muscles.
Artificial EMF and many chemicals may act at genetic and epigenetic levels.
The proposed mechanism of action is oxidative or nitrosative stress.

Practical prevention should be individualized, proportionate, and compatible with essential care, work, communication, and social needs. Document the patient's reported triggers and the response to reasonable avoidance measures.

Certificates, ethics and evolution

Certificates are often requested by institutions (including MDPH in France) and by patients seeking recognition of disability. The source guide states that such certificates are authorized by law and cites French DGS/EA1 information note no. 2014-171 of 26 May 2014 concerning risks associated with radiofrequencies.

Deontological conditions emphasized by the source guide

- Issue a certificate only after a clinical examination; do not issue it on the basis of a telemedicine consultation alone.
- Report the facts as described by the patient without making a definitive medical judgment, while recognizing that EHS and MCS are recognized internationally in the source guide.
- Recommend preventive measures under the precautionary principle without asserting that the condition is proven to be caused by EMF or chemical products.

Reported evolution

With treatment and protection	Without treatment and protection
The source guide describes a favorable course and possible return to baseline (ad integrum?).	The source guide describes persistence, possible progression toward a degenerative neuropathy with risk of cerebral atrophy in EHS, or even toward lymphomas in MCS.

These prognostic statements reproduce the supplied source guide and should not be treated as established outcomes without independent appraisal of current evidence.

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Further reading suggested by the source: Belpomme D. *Le livre noir des ondes: Les dangers des technologies sans fil et comment s'en protéger*. Marco Pietteur Editions; 2021.

End of reference edition