



Association pour la santé environnementale du Québec
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ASEQ-EHAQ

Multiple Chemical Sensitivity: Chemical indoor air pollution is the new tobacco

The World Health Organization is now warning us that air pollution is among the top five major risk factors for developing chronic, non-communicable diseases, such as cardiovascular, respiratory and neurodegenerative disorders, along with tobacco use, harmful use of alcohol, unhealthy diets and physical inactivity.¹ We also know that, because we spend 90% of our time indoors, most of our exposures actually occur in the indoor environment, which is also polluted with more chemicals than outdoors.

Whether all these exposures cause harm or not is dependent on many factors, but we do know that low dose exposures to foreign and synthetic substances are perceived by all living organisms. They do so on a cellular level by using early warning detection receptor systems that sense environmental chemicals. Receptors are structures on the surface or inside a cell that perceive a chemical signal. This is how hormones send signaling messages to various tissues in the body. When receptors that detect foreign substances are stimulated, the cells respond by stimulating certain genes to promote detoxification before the chemicals can cause cell dysfunction or loss of cells eventually leading to measurable organ malfunction.

The recent report published by the National Institute of Public Health Québec (*Institut national de santé publique du Québec* (INSPQ)) ignored these facts when they concluded that anxiety is the cause of multiple chemical sensitivity (MCS). They also failed to acknowledge the majority of scientific research, which demonstrates that these same receptors can become sensitized to multiple chemicals at low doses. They ignored the multitude of studies published in peer reviewed scientific journals which have repeatedly demonstrated that these receptors are sensitized in MCS patients, which is central to the development of symptoms. The INSPQ authors misinterpreted brain scan studies using known stimulants of these receptors which have shown that MCS patients process odors neurologically differently in areas of the brain that contain these receptors. Instead, they boasted that they had debunked biological theories for MCS and claimed that it is caused by anxiety.

¹ https://www.euro.who.int/data/assets/pdf_file/0005/397787/Air-Pollution-and-NCDs.pdf





The INSPQ report is clearly skewed by poor methodology. Multiple studies and concepts were missed or ignored. Multiple experts have provided detailed corrections based on the preponderance of peer-reviewed literature that was omitted from the report. Instead of participating in discussion, the authors of the INSPQ report refuse to acknowledge what they have missed or its significance, instead relying on their hegemonic position as an authoritative body, despite having no training, education, experience or expertise regarding the MCS condition.

Another reason for their biased conclusions is that they refused to follow established research protocols for health reviews. It is universally acknowledged by policymakers, researchers and research funding bodies that full partnership with patients is essential to any modern research enterprise. Including patients and the public as partners in research is accepted best practice.² Input from those with lived experience is essential in modern medical research, and patients have a right to provide input to research on their condition. Reducing the known power imbalances between researchers and patients is a moral duty of researchers, especially with oppressed and seldom-heard groups. This certainly includes the MCS population. Instead, despite three assurances of inclusion given in writing to the Association pour la santé environnementale du Québec – Environmental Health Association of Québec (ASEQ-EHAQ) from two Directors of the National Public Health and Assistant Deputy Minister, Ministry of Health and Social Services Québec (MSSS), the INSPQ repeatedly refused both volunteer patient and experienced expert input from the inception of their review in 2014 until the report was completed and published on their website, with its wrongful conclusions and potential for harm to the community of MCS patients.

Meanwhile, many people with severe MCS, who cannot find healthy, appropriate housing in Canada, are being “supported” by being allowed to die with medical assistance. This horrific fact has now been reported by the press.³ CTV News tried to practice what they perceive as journalistic due diligence, by providing a link to McGill University’s “**Office for Science and Society**”.⁴ This website referred to the INSPQ report by stating, “my hat’s off to the textbook’s many authors for this colossal work,” which “comes to the conclusion that trace amounts of chemicals are not to blame and that MCS is a type of anxiety disorder in which anticipation of a danger causes very real and debilitating physical symptoms.”

Given that today’s weight of scientific evidence is that MCS is a biological condition due to receptor sensitization to chemicals, one needs to understand the weapon of denialism. This is

² <https://www.bmj.com/content/bmj/362/bmj.k3193.full.pdf>

³ <https://www.ctvnews.ca/health/woman-with-chemical-sensitivities-chose-medically-assisted-death-after-failed-bid-to-get-better-housing-1.5860579>

⁴ <https://www.mcgill.ca/oss/article/health/zeroing-cause-multiple-chemical-sensitivity>



the spin strategy refined by the tobacco⁵ and oil industries,⁶ and further utilized by the deniers of climate change⁷ to promote their own self interests, despite the harm caused by doing so. Science deniers accept evidence only if it confirms their prior beliefs - that usually means ignoring or contradicting the weight of recent evidence. Science deniers' question scientific milestones and spread misinformation. Indeed, they attempt to convince the public and the media that opposing opinions are not based on 'sound science'. Denialism uses the voices of those pretending to be ultimate authorities on the topic in question. Their goal is to convince people that there are sufficient grounds to reject the case for taking action to tackle threats to health. In this case, the message of the more than one million Canadians diagnosed with MCS (Statistics Canada, Canadian Community Health Survey, 2020) that people need to reduce their daily chemical exposures is being challenged by those who deny and spin the science. It is known from the above-mentioned source for statistics, that the prevalence of diagnosed MCS is increasing (Statistics Canada, Canadian Community Health Survey, 2000-2020).

There is already an ongoing struggle for these patients to live and function in a society with ubiquitous chemical exposures. As described in the Final Report of the Ontario Task Force on Environmental Health,⁸ having MCS may severely influence different aspects of everyday life, including lifestyle, social relations, and occupational conditions and employment, potentially leading to loss of family and social supports, reduced social interactions, access to health and public transportation, reduced income, increased disability and third-party litigation. The erroneous INSPQ conclusions and articles such as from the '**Office for Science and Society**' add to the burden of having MCS.

ASEQ-EHAQ provided the INSPQ with all the above information that they had missed, including all the citations in support. Three months later, they waved it away with one sentence, that all this information did not change their opinion that MCS is caused by anxiety. They continue to evade any transparent scientific scrutiny and ignore the criticisms from experts. Their denial of chemical sensitization as the cause of MCS is a dysfunctional scepticism, not based on a full examination of the published science and is not even a healthy debate. The INSPQ has yet to do their job, to do an exhaustive critical analysis of *all* of the relevant literature, not a cherry-picked small subset of what they should have included. The INSPQ has become barricaded against transparent scientific scrutiny and conversation. Now harms to people experiencing MCS have escalated, provoking people with lived experience of MCS, and experts to speak out.

⁵ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1497700/pdf/15842123.pdf>

⁶ <https://www.scientificamerican.com/article/tobacco-and-oil-industries-used-same-researchers-to-sway-public1/>

⁷ <https://ehjournal.biomedcentral.com/articles/10.1186/s12940-021-00723-0>

⁸ https://www.health.gov.on.ca/en/common/ministry/publications/reports/environmental_health_2018/task_force_on_environmental_health_report_2018.pdf



What about the numerous published papers showing that anxiety develops after the onset of MCS, as with many other chronic conditions? Clearly, a cause cannot occur after the development of a medical condition. Anxiety and depression are more likely to occur after developing MCS because of the difficulties in living in a world of ubiquitous chemical exposures and a society which ignores, challenges or stigmatizes individuals with MCS. The lack of support, accommodation and understanding of this condition contributes to the impact of the inability of people with MCS to access medical care, place of employment, social contacts, public transportation, houses of worship and healthy housing. And now those most severely impacted by MCS due to a lack of accommodation (healthy living spaces and removal of barriers that trigger MCS) have despaired and turned to the appalling option of successfully applying to the government and followed through for medical assistance in dying.

Denialism⁹ is driven by how the denier would like things to be rather than what the evidence actually shows, making science denialism a motivated rejection of science. Consider who stands to gain by denying that ubiquitous chemical exposures can make people sick, and how much this costs the rest of us. Common chemical exposures have become the new tobacco.

It is time for those who use their positions of authority to maintain influential and potentially harmful opinions based on poor research to acknowledge and correct their errors or be held accountable and replaced. It is also time for their supporting “expert” science deniers to be outed for their purposefully biased spin and potentially harmful opinions.

L’Association pour la santé environnementale du Québec – Environmental Health Association of Québec (ASEQ-EHAQ) has been working since 2004 to advocate for, and support, help and assist people disabled with MCS. With a membership of over 2000, outreach includes education and awareness to the membership and to the general population.

Register for our Month of May Awareness and Education campaign: <https://aseq-ehaq.ca/en/events/>

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⁹ <https://academic.oup.com/eurpub/article/19/1/2/463780>