Title: Invisible Burns

Challenging widely accepted perspectives is never easy. In the mid 19th century, Dr. Ignaz Semmelweis, a Hungarian physician and scientist was frustrated by the fact that 1 in 5 healthy women who entered the hospital to have a baby would die due to “childbed fever.” Dr. Semmelweis noticed that doctors performing autopsies in one ward of the hospital would rush over to deliver babies in another ward without washing their hands in between. He asked doctors in his hospital to practice hand washing in between these procedures, and the death rate plummeted from 18% to 1%. The greater medical community, however, met Dr. Semmelweis with intense resistance. It took decades until BSI (body substance isolation, a familiar term for EMTs and Paramedics) became universally known and accepted. Semmelweis never saw this come to fruition as he was discredited, lost his job, and was eventually thrown into a mental hospital. Shortly after being admitted into an asylum, he was beaten to death by the staff.

In 2025, challenging the general consensus is still not easy. One such topic is that of EMF exposure and the detrimental health effects on firefighters and the general public. EMF is a very broad term, but it stands for electromagnetic field. Electric and magnetic fields come from anything powered by electricity: wiring in walls, floors, and ceilings, power lines, and everyday appliances. Radiofrequency EMFs come from common devices such as microwave ovens, baby monitors, cell phones, Wi-Fi routers, Bluetooth systems, and cell towers. Because of the unique infrastructure of fire stations and the nature of the job, firefighters are often exposed to higher levels of EMFs than the general public. Research suggests this long-term exposure may be linked to increased risks of mental health disorders, suicide, cardiovascular disease, and cancer. This conversation isn’t meant to alarm—but to inform, to challenge assumptions, and to encourage deeper investigation. We owe it to ourselves—and each other—to ask the difficult questions.

In 1869, a young doctor by the name of George Miller Beard wrote the first clinical histories of a previously unknown disease he was observing in his neurology practice in New York City. His paper published in the Boston Medical Journal was titled “Neurasthenia,” also known as weak nerves. Observed symptoms included fatigue, anxiousness, headaches and impotence. Beard emphasized that it primarily affected the educated and professional classes, not the poor nor working class. The condition was seen as distinct from psychiatric illness. Beard argued that it resulted from the nervous system undergoing subtle chemical changes from factors such as: urbanization, industrialization and technological advancement. This was at the brink of the second industrial revolution, meaning that at the time of his paper only the educated and professional classes had access to electricity, not the poor nor working class. This discovery and observation by Dr. Beard appeared to link high exposure of EMF to disease.

In 1894, Sigmund Freud was the catalyst that reclassified neurasthenia from an apparent environmental toxin to a normal element of the human condition, when he wrote a consequential

paper causing this change to be widely accepted. Sigmund Freud went on to rename neurasthenia “anxiety neurosis” with symptoms including: irritability, heart palpitations, insomnia, fatigue, and headaches. Firefighters identify with these symptoms far too often, and typically dismiss them as a consequence of shiftwork. This chronic fatigue or feeling of burnout can eventually lead to severe health issues. Within the International Classification of Diseases, the unique code for neurasthenia (F48.0) has been removed from the version used in the United States (ICD-10-CM). Neurasthenia is almost never diagnosed in the U.S. Modern psychiatry in the west favors specific diagnosis like depression, anxiety disorders, and chronic fatigue syndrome for similar symptoms. Asia and Eastern Europe however never went along with Freud’s reclassification of neurasthenia. In fact, neurasthenia (the original classification) is the most frequently diagnosed disease in general medical practice in Asia and Eastern Europe. It is often considered a sign of chronic toxicity.

The third biggest killer of firefighters is cancer. The link between EMF exposure and firefighter cancers was completed in 2009. Dr. Samuel Milham author of “Dirty Electricity: Electrification and The Disease of Civilization” found that firefighters have an elevated risk of various cancers including: leukemia, multiple myeloma, non-hodgkin's lymphoma, malignant melanoma, male breast, brain, stomach, colon, rectal, prostate, testicular, and urinary bladder cancer. Interestingly, respiratory system cancers were not notably increased despite firefighter’s exposure to inhaled carcinogens from fires. The discrepancy led researchers to consider other sources of carcinogenic exposure such as EMFs from communications devices at fire stations and nearby cell towers. The types of cancers seen in firefighters closely match those found in workers habitually exposed to EMFs.

In 2021 the Washington D.C. Court of Appeals ruled that the existing RF safety standards were set in an "arbitrary and capricious" manner and mandated the FCC to provide evidence/justification for the extraordinarily high allowable RF limits. In plain English, that means the second highest court in the land (one level below the Supreme Court) ruled that the current RF safety standards are extraordinarily high, obsolete, and scientifically unjustified. It has been almost 5 years, and the FCC has yet to respond to the court's mandate, and instead has changed its rules and built more telecom towers targeting fire stations, schools, and neighborhoods.

One might argue that although first responders are generally exposed to much greater levels of EMFs, they are well below the FCC safety standards. There are two categories of safety levels for EMFs, one for electronics and one for humans. The safety standards for electronics are based on the principle of interference which essentially states that even a very weak wireless communication signal can affect, alter, and disrupt functioning of an electronic device. The safety standards for humans concerning EMFs are based on the principles of heat. While thermal consideration is a valid concern, the reality is that our entire body is just as much an electrical system as the devices we work and play with. All of our cells communicate with one another through electrical signals via bioelectricity. The threat of interference on our bodies caused by wireless radiation is not considered real, and we are given zero protection. The safety standards for our wireless world are set by the International Commission on Non-Ionizing Radiation Protection, and do not account for any health related concerns unless the wireless

signals are strong enough to significantly heat us up. Since most countries use this heat based safety level, we rarely
hear about any EMF related issues.

There are several immediate solutions that can be done at home and at fire stations to create healthier environments. The most important place to protect at the firehouse is the sleeping area. Placing cell phones in airplane mode when turning in for the night can substantially reduce your exposure. The reduction is even stronger in a “common dorm” where multiple firefighters sleep. With all members on the same page, everybody benefits. By protecting this space from high EMF signals, we can make a positive significant impact on our health and wellness. Let distance be your best friend. Moving Wi-Fi routers out of common dorms is a great first step, as well as removing any Bluetooth devices, and cellphones. Online e-courses such as those offered by EMF Center, can help you protect your health at work and your family at home by creating calmer, safer spaces. The Precautionary Principle is a guiding framework for risk management. It states that if an action or policy has a suspected risk of causing severe or irreversible harm to the public or the environment, protective measures should be taken, especially if full scientific certainty (as is the case here) has not yet been established.

The story of Dr. Semmelweis is a sobering reminder of how fiercely society resists new ideas—especially when they challenge established norms or implicate powerful systems. The same resistance can be seen today in the conversation around EMF exposure. While the scientific and medical communities have made great strides in many areas, they have often lagged in acknowledging environmental contributors to illness—particularly when those contributors are invisible, poorly understood, or tied to technological infrastructure. Evidence continues to emerge suggesting that EMF exposure has significant, long-term health effects—especially for high-risk groups like firefighters. Yet, like Semmelweis’s handwashing campaign, these concerns are often met with skepticism or dismissal. This is a call for awareness, deeper investigation, and more inclusive standards of safety. If our technology is advancing, so too should our willingness to ask uncomfortable questions about its impact—on our minds, our bodies, and the systems meant to protect us.