



**Canadian Educators
for Safe Technology**

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Protecting Biological Health, Human Rights, Accessibility, and Environmental Sustainability in Canada's Wireless World

A Teachers' Personal Testimony and Comprehensive Submission on Radiofrequency Electromagnetic Radiation (RF-EMR)

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Part 1 - Professional Background and Personal Journey

1.1. My teaching career and life before electromagnetic hypersensitivity symptoms

As the Director of Canadian Educators for Safe Technology (CE4ST), I work with teachers, and families of students attending schools in the United States and Canada.

I was diagnosed by Dr. Riina Bray, Director, Environmental Health Clinic, Women's College Hospital, Toronto. My diagnosis was Electromagnetic hypersensitivity (EHS) - also known as electromagnetic intolerance to wireless radiofrequency radiation.

CLINICAL PRACTICE GUIDELINES IN THE DIAGNOSIS AND MANAGEMENT OF ELECTROMAGNETIC FIELD HYPERSENSITIVITY (EHS)

<https://www.womenscollegehospital.ca/wp-content/uploads/2022/06/Preliminary-Clinical-Guidelines-for-EHS.pdf>

As a person living with Electromagnetic Hypersensitivity, I am gravely concerned that the rapid expansion of wireless technology could leave me and my family with severely limited options where we can live safely live, access essential services, and participate fully in society. For those of us who can be disabled by symptoms triggered by radiofrequency radiation, towers close to home, or work could mean repeated displacement of families; loss of housing, employment, participation in their community, and access to essential services. We need parks, beaches, and trails, to remain accessible for recovery and healing.

No one should have to choose between enduring debilitating symptoms and withdrawing from everyday life. Preserving accessible homes, public services, and areas with reduced wireless exposure is essential to my dignity, independence, and future.

More than ever, we urgently need RF-reduced public spaces. There are a multitude of ways to create barrier free, inclusive RF-reduced, modernized wired places to support the diverse needs of Canadians. Signage in public places encouraging airplane mode with Wi-Fi and Bluetooth turned off, modelled on smoke-free and scent-free notices; public health awareness campaigns promoting safe technology practices; and stronger accessibility policies and protections to address barriers faced by people living with electromagnetic sensitivities and other environmentally induced disabilities.

1.2. Genetic Precursors that lead to my intolerance to radiofrequency wireless radiation:

Genetic testing conducted through the Toronto Environmental Health Clinic identified several genetic variants that, according to my physician, may influence my susceptibility to

environmental exposures. My physician also explained the role of environmental epigenetics and its potential relevance to my symptoms. These findings were discussed as possible contributing factors to the symptoms I experience in environments with wireless radiation.

These genetic precursors indicate my inability to manage symptoms: I'm missing the GSTT1 gene, the GSTM1 detox gene and my GSP1 is suboptimal. I also carry the MTHFR gene which reduces my ability to methylate and remove toxins. An estimated 2% of the population carries this specific combination of genetic variants.

Doctors diagnose and treat mild, moderate, or severe EHS symptoms. When symptoms become chronic, or severe, EHS is recognized by some doctors as an environmental disability. This environmentally induced sensitivity is diagnosed and treated by doctors. People who are electromagnetically sensitive, can become disabled if they are not accommodated. People with EHS need Wi-Fi absent and wired, essential services: homes, accessible workspaces, schools, hospitals, medical clinics, public facilities.

Extremely low levels of wireless radiofrequency radiation (RF) (beyond 50 $\mu\text{W}/\text{m}^2$, approaching 100 $\mu\text{W}/\text{m}^2$ can trigger debilitating symptoms that interfere with my ability to function and participate in everyday life. While exposure levels may fall within established regulatory guidelines, this does not mean I can comfortably tolerate them or access services in environments where wireless technologies are continuously operating.

Wireless exposure presents a significant barrier to my participation in the workplace, and in public. My accommodation needs must be assessed individually, with respect for my dignity and my right to equitable access. Meaningful inclusion requires accommodations that address the **symptoms** and **functional limitations** I experience.

No amount of wireless radiation is okay for someone who is living with EHS. RF-reduced environments and accessible public spaces with wired technology are essential accommodations. They can make the difference between being able to enter a building, attend an appointment, participate in a meeting, access healthcare, shop for necessities, remain employed, or being effectively excluded from these activities.

Health guidelines intended to protect the public from nerve stimulation and subsequent debilitating effects, fail to protect me and an estimated 3-12% of people who experience mild, moderate, or severe symptoms.

1.3. My Experience:

Acute Nerve Stimulus-Responses to Wireless Radiation Acute zaps in the central region of my head appear whenever I'm around cell towers, cell phones, and all wireless emitting

products, without exception. The time, onset, and intensity of my neurological symptoms (head zaps; sharp, piercing pain deep within the central region of my head, accompanied by a progressively intensifying sensation of pressure in the frontal region, behind my forehead), vary with the signal strength, my proximity to the wireless source and the duration of my exposure. These “zaps” appear to mimic a nerve test I had.

Peak and cumulative exposures appear to have a greater impact on me. My symptoms can last for hours, or days. In the presence of wireless signals in public, my symptoms often become a chronic and progressively debilitating. I feel physically and mentally agitated. I have to stop what I am doing, leave the environment, and search for an RF-reduced location to relieve my symptoms.

1.4. Wireless Impacts, Functional Limitations:

My experience around wireless transmissions have been chronic and debilitating. With the onset of intense symptoms I experience impaired information processing, reduced working memory, and difficulty with planning, decision-making, and task sequencing. My symptoms can interfere with my ability to think clearly, retain details, retrieve words, organize my thoughts, process information, concentrate, make decisions, communicate effectively, and carry out even routine tasks. With prolonged exposure, I have experienced neurological symptoms including impaired gross motor coordination (left side), reduced balance and stability, and an increased tendency to stumble or trip. Chronic classroom exposures led to challenging physical, functional limitations, I felt compelled to hide, to keep my job. **(Classroom details below)**

My symptoms are significantly heightened and can become debilitating around:

- Cell phone calls and texts within 15 meters
- Wi-fi routers, access points within 15 meters
- Cell towers within 2 km
- Neighbours in-home wi-fi router signals reaching sidewalks

Cellular signals from cell phones, and cell towers trigger more intense symptoms per minute, followed by Wi-Fi routers, wireless access points (WAPs). Bluetooth signals trigger weaker symptoms.

1.5. My Experience: Varying Signal Strengths, Varying Symptoms

Over the past 16 years, I have consistently experienced these recurring symptoms in association with exposure to electromagnetic radiation in the microwave frequency range, with their severity and duration varying according to signal strength, my proximity to the signal, and duration of exposure.

Although I can feel signals around 10 $\mu\text{W}/\text{m}^2$, and I often tolerate signals around 50 $\mu\text{W}/\text{m}^2$, as the signal strength approaches 100 $\mu\text{W}/\text{m}^2$, these signals become intolerable.

To recover from daily exposures, I leave and ground outdoors. Hiking or swimming for a **couple of hours** typically alleviates my symptoms from chronic exposures. Living and playing in an RF-absent environment (at our beautiful log cabin, or our home) allows me to be symptom free.

1.6. Different Wireless Signals, Distinct and Recurring Symptoms

Texts: appear to send the strongest signals and create a searing pain through the posterior part of my head.

Cell Phones: depending on my proximity - farther away pins and needles (head), closer; frontal head pressure and building pain. I must leave within 5 - 10 minutes, depending on the phone signals (some phones appear worse than others - I haven't documented this)

Neurological symptoms (from cellular and wireless signals) typically linger 8 hours to 3 days after wireless signals are absent.

Bluetooth: Mild, diabetes-like symptoms, including a sudden, compelling need to eat to alleviate discomfort may be due to fluctuations in blood sugar levels (I had gestational diabetes, so I'm familiar with symptoms related to fluctuations in blood sugar. I estimate that within approximately 20 minutes (possibly longer), the symptoms progressively intensify until I experience an overwhelming need to eat to get some relief.

Wireless signals WAP: Within 5 min. (near the WAP) or 10 min. (a few meters away within a classroom) – electric shocks in my head, building head pressure, and with prolonged chronic exposure hours - brain fog, loss of executive functioning; impaired coordination, problems with balance, increased tripping, if there are no opportunities to recover (leave, ground outdoors).

Wireless Computer on desk: Mild zaps in upper body - chest. These zaps appear similar to zaps I experienced once from a nerve test.

Mental Health, Anxiety: I discovered that repeatedly experiences pain in the presence of wireless signal, simply seeing a WAP, or device would often heighten my anxiety because I wanted to avoid these painful experiences. Conversely, if the source was turned off and if I was informed, my anxiety naturally diminished. I'd gain reassurance that the source of discomfort was no longer active. When friends confirm their devices are in airplane mode, with cellular, Wi-Fi, and Bluetooth signals disabled, I feel relaxed and comfortable.

However, if symptoms returned, my anxiety increased, prompting Brian or me to check that all wireless functions are indeed disabled.

When I am not around wireless signals, I feel symptom free, energetic and healthy.

These are not minor discomforts. They are symptoms that can significantly disrupt my neurological functioning, independence, mental health (stress, anxiety around uncomfortable or painful nerve stimulation) and ability to participate in everyday activities. Access to healthcare, education, employment, public transportation, and public services should include meaningful consideration of accommodations that allow individuals experiencing such limitations to participate with dignity.

Avoiding wireless radiation in public can be extremely challenging and almost impossible. I experience chronic and often debilitating symptoms from accidental exposures; driving by a cell tower, a friend forgetting to turn off a router or cell phone. I need to drive beside trucks to reduce cell tower exposures. I can't tolerate signals at a stop light if a cell tower is close by.

I cannot easily use public transportation, stay with my family in hotels, or access my grocery store, medical clinics, or hospitals, without experiencing intensifying and debilitating, neurological symptoms. I must minimize my time in these public areas. Family or disability bathrooms in airports provide me with the refuge I need to avoid signals and debilitating symptoms. At medical clinics I let staff know where I will be waiting (RF-reduced area, including the washroom, my car, etc.), and they notify me in person when they are ready to see me.

Accessibility is not simply about reducing the strongest wireless signal. It is also about minimizing sustained exposure from multiple sources so that I can remain in an environment long enough to participate meaningfully in everyday activities.

No one should have to endure sudden, piercing sensations of pain, electrical shock-like symptoms deep within in their head, progressively intensifying head pressure, migraines, cognitive fog, or impairment in executive functioning simply to enter public spaces, to simply get a drink of water, or access essential services.

The cognitive effects can be particularly disabling. Tasks that normally require little effort following a conversation, understanding instructions, planning my next steps, or responding to questions can become increasingly difficult. My ability to think clearly, exercise judgment, and manage several pieces of information at once may become mildly, moderately, or substantially impaired.

What should be an ordinary activity, visiting a grocery store, attending a medical appointment, entering a government building, participating in a community gathering, or accessing public transportation, can become an overwhelming; a physically distressing experience.

As my symptoms intensify, I may struggle to follow conversations, remember information, organize my thoughts, or make decisions that would normally come easily. Instead of being able to participate fully in the activity, my attention shifts toward managing my symptoms and finding a place where I can recover.

Access to public spaces should not come at the expense of a person's health, dignity, independence, or ability to function. People experiencing these limitations deserve to have their accommodation needs taken seriously and to be offered practical, individualized solutions.

1.7. Inclusive, Accessible, Safer Public Spaces For Everyone, Including Pets:

To consider the diverse needs of people, including children, medically vulnerable, and electromagnetically sensitive people:

True accessibility means creating environments where people can do more than simply enter a building; it means they can remain, function, participate, and belong without experiencing debilitating symptoms.

Practical accommodations, Providing RF-reduced Environments: such as designated low-RF areas, wired internet connections, reduced wireless transmissions, and alternatives to wireless-only services, can help remove barriers that would otherwise prevent my participation. Wired technology alternatives (fiber optics to the premises with no wireless connections), and flexible access arrangements can help people like me participate more fully in education, employment, healthcare, community activities, and everyday life.

Promote Public Health and Environmental Sensitivity Signage in Public Spaces: No-smoking; Environmental Sensitivities including scent sensitivities and electromagnetic in public spaces can make public spaces accessible.

Place Cell Towers, at Least 1 km away from Schools, Parks, Beaches, Trails: To protect teachers and students with environmental sensitivities, cell tower siting should follow a precautionary approach that prioritizes school accessibility and accounts for scientific evidence concerning children's vulnerability to environmental exposures. This means locating towers away from schools. The BioInitiative Report's 2007 outdoor values

recommend RF levels should not exceed 1,000 $\mu\text{W}/\text{m}^2$. Cell towers also need to be at least 1 km away from parks, beaches, trails; places where people like me need to go to heal and recover from wireless exposures in public.

My RF-Reduced, Wired Home, Safe for Everyone: I live in a RF-reduced, wired, home with ambient exposures around 3-5 $\mu\text{W}/\text{m}^2$. We have no wireless emissions from within our home. We no longer have a microwave oven; we prepare our meals using a stovetop and a conventional oven. Our home is equipped with analogue utility meters and a wired network using powerline Ethernet adapters, Ethernet cables, and compatible adapters to connect all our devices.

All members of my family, and friends who visit use our adaptors to wire their wired devices to maintain an RF-reduced accessible home environment. Our home is fully equipped with wired internet connections, providing reliable, high-speed connectivity while supporting energy-efficient operation and minimizing our reliance on wireless technology. We use USB-C ports, adaptors, ethernet cables, powerline carriers plugged into duplex receptacles. We also use landline phones with VoIP devices at home and at our cottage. I stay connected with family and friends through Facebook Messenger on my wired-only computer, allowing me to maintain meaningful relationships, share experiences, and enjoy social interaction, while accommodating my need to minimize wireless exposure.

My functional limitations and need for individualized accommodations are important considerations in ensuring equitable access to public spaces and essential services. No one should have to experience head zaps, building migraines, brain fog, loss of executive functioning in public spaces.

Ultimately, **accessibility means more than being allowed through the door - it means having an environment in which I can safely and meaningfully participate.**

Part 2 - The Scientific Evidence: Biological Effects of Radiofrequency Radiation

Dr. Davis and Dr. Miller provide evidence from extensive published scientific research which indicates that radiofrequency radiation at levels far below Health Canada and U.S. Federal Communications Commission limits “can cause [cancer](#), [increased oxidative stress](#), [genetic damage](#), structural and functional changes of the [reproductive system](#), [memory deficits](#), [behavioral problems](#), and [neurological impacts](#). We consider radiofrequency radiation (RFR) to be a human carcinogen based on the [current body of evidence](#)<https://ehtrust.org/wp-content/uploads/EHT-CELL-Tower-Letter-Chester-2021-2.pdf>.”

[IARC classifies radiofrequency electromagnetic fields as possibly carcinogenic to humans.](#)

Part 3 - My Personal and Professional Journey

3.1. My Background: A Lifetime Devoted to Education, Children, and Community

I devoted 29 years of my life to teaching elementary school children in Ontario, Canada.

Teaching was more than my profession. It was my passion, my purpose, and an important part of my identity. I believed that every child deserved a safe, inclusive, supportive learning environment where they could develop confidence, discover their abilities, and reach their full potential.

Throughout my career, I was a committed and enthusiastic educator. I loved developing creative learning opportunities, collaborating with colleagues, building relationships with families, and watching children experience the excitement of learning.

Outside the classroom, I enjoyed an active and fulfilling life with my husband, our family, and friends. I loved travelling, outdoor activities, entertaining, and participating in community life.

Before wireless exposures in the school and in public, I was energetic, optimistic, resourceful, and determined. I believed that hard work, compassion, and perseverance could overcome most challenges.

Nothing prepared me for the profound changes that would follow the onset of debilitating physical symptoms I came to associate with wireless electromagnetic radiation.

I would eventually discover that the same technology increasingly embedded in our schools, workplaces, homes, and public spaces could become, for me, an enormous barrier to participating in everyday life.

My experiences fundamentally changed how I understood environmental health, accessibility, and the responsibilities of our institutions toward people with invisible disabilities.

3.2. My Health Deteriorated: The Beginning of Electromagnetic Hypersensitivity

Before my health deteriorated, I rarely had to consider whether I could enter a public building, attend a social event, or complete an ordinary task.

That changed when I began experiencing severe headaches and debilitating migraines.

Initially, I did not understand what was happening.

I noticed that certain environments appeared to trigger intense physical symptoms, particularly places where wireless devices were operating.

When someone nearby sent a text message, I sometimes experienced a sharp, piercing pain in my head. Telephone calls and other wireless activity appeared to be associated with mounting pressure, followed by severe migraines.

The pain could become intolerable. There were times when I crawled into bed for hours each day, unable to participate in family activities or carry out ordinary responsibilities. As the symptoms progressed, I experienced neurological difficulties that affected my ability to function at work and at home.

My symptoms appeared to become more severe with longer periods in environments where wireless transmissions were present.

I learned that the intensity and duration of my symptoms were linked to my proximity to transmitting devices and time spent in particular environments.

These were my personal observations that became important in understanding how to manage my daily functioning.

The consequences were devastating.

I loved my work, but I increasingly struggled to remain in the classroom for a full day.

Activities that had once brought me joy became physically exhausting.

Even grocery shopping could become impossible when I was experiencing severe head pain. Staff at my local grocery store kindly shopped on my behalf. Some day I hope to be able to enter a grocery store, compare prices, select my own food (checking for variety, and quality).

I was determined to find answers.

3.3. Searching for Answers: Medical Investigations and My Diagnosis

For approximately two years, I sought medical explanations for my symptoms.

I underwent medical investigations, including neurological assessments, an MRI, and a CT scan.

The process was physically and emotionally exhausting.

I carefully documented my symptoms, the environments in which they occurred, and the circumstances in which I experienced relief.

My husband, Brian, a professional engineer, helped me investigate the characteristics of wireless emissions using radiofrequency measurement equipment.

We observed measurable differences in RF transmissions during activities such as sending text messages and making telephone calls.

These observations helped us understand the changing electromagnetic environment around us, although the measurements could not establish that RF emissions caused my medical symptoms.

Eventually, I consulted Dr. Riina Bray at the Environmental Health Clinic at Women's College Hospital in Toronto.

14 years ago, Dr. Bray, the Director of the Environmental Health Clinic, Women's College Hospital, diagnosed me with electromagnetic hypersensitivity (EHS). I have genetic precursors which can explain my environmental sensitivity to scents and wireless radiation.

Receiving a medical diagnosis and having a physician take my experiences seriously was profoundly important.

After years of debilitating symptoms and uncertainty, I finally had professional support in developing strategies to manage my health.

I began making practical changes to my surroundings, including reducing wireless transmissions, using wired technologies, and seeking environments where I experienced fewer symptoms.

These changes made a significant difference in my quality of life.

Although the underlying causes of electromagnetic hypersensitivity remain scientifically contested, the symptoms and functional limitations I experienced were real and, at times, profoundly disabling.

3.4. Living With an Invisible Disability: The Loss of Everyday Freedoms

Electromagnetic hypersensitivity changed far more than my health.

It changed where I could go, how I travelled, where I could work, and how I interacted with the world around me.

I began avoiding public libraries, museums, churches, community centres, skating arenas, and other buildings where I experienced significant symptoms.

Restaurants became difficult unless I could find a secluded outdoor patio or attend at a quieter time, ½ hour before closing.

Travel required careful planning.

Family vacations became more complicated and expensive because I needed to consider wireless equipment in transportation, accommodation, and public facilities.

I found myself thinking about environmental conditions before undertaking activities that most people take for granted.

Could I visit a friend, or go grocery shopping without becoming ill? Could I attend a community gathering or go to the movie theatre? Could I enter a medical clinic without experiencing debilitating symptoms? Could I travel on routes with cell towers without triggering a migraine that might last for hours or days?

These were not questions I had ever expected to ask.

I had always embraced life with enthusiasm. Now, participation often requires extensive planning, personal expense, and sometimes difficult conversations with people who did not understand my condition.

I also learned that full recovery could require withdrawing from public environments and spending time in spaces where I experience fewer symptoms.

The result was ultimately increasing social isolation, to feel well again.

For a person who loves family gatherings, friendships, travel, and community activities, this loss of spontaneity and independence can be deeply painful.

3.5. Stigma, Disbelief, and the Emotional Burden of Electromagnetic Sensitivity

One of the most difficult challenges has been the stigma surrounding electromagnetic hypersensitivity.

Because the disability is invisible and its proposed relationship to RF exposure remains disputed, people experiencing symptoms may encounter skepticism or disbelief.

I have sometimes needed to ask others whether they would consider placing their phones in airplane mode or reducing wireless transmissions nearby.

These requests were not always welcomed.

Some people were compassionate and willing to help. Others did not understand why I was making the request.

Individuals reporting electromagnetic sensitivity may be dismissed as irrational, overly anxious, or imagining their symptoms.

Such attitudes can make it difficult to seek accommodations, obtain support, or participate confidently in public life.

I have experienced how exhausting it can be to repeatedly explain a medical condition while also trying to manage debilitating symptoms.

There is an emotional cost to constantly negotiating your right to participate.

There is also a financial cost. Specialized equipment, shielding materials, alternative travel arrangements, and suitable accommodation can be expensive. For individuals who cannot work consistently because of their symptoms, these costs may become overwhelming.

I believe our society must distinguish between uncertainty about the cause of a medical condition and the responsibility to treat people experiencing disabling symptoms with dignity.

Scientific debate should not become an excuse for humiliation, discrimination, or the automatic dismissal of reasonable accommodation requests.

3.6. The Workplace: When the Career You Love Becomes Difficult to Sustain

My experience as an electromagnetically hypersensitive teacher made workplace accessibility deeply personal. I loved my students and wanted to continue teaching.

However, as wireless technology became more widespread in educational settings, I experienced increasingly difficult symptoms.

Without accommodations for the last quarter of my teaching career, I was forced to endure microwave radiation levels, 10 times more than I could tolerate. Determined not to quit my dream job, I took deep breaths through the pain. I had a stellar attendance at work, and I had strong community support. In spite of my dedication to students and their families, my employer did not provide official accommodations.

I quickly discovered that with no specific accessibility guidelines for those suffering from an intolerance to wireless radiation in the microwave range, EHS disabled teachers may feel forced to wear uncomfortable, hazmat-like EMF protective clothing protect to reduce their exposures to wireless radiation. My nickel-lined veil was not as effective as I had

hoped. It only blocked 95% of the wireless signals from the wireless access point (WAP) in my classroom. Wearing protective clothing such as nickel fabricated veil, did not adequately block wireless signals. It was restrictive, and hot. This physical barrier sometimes interfered with my ability to interact with my students. I felt forced to remain seated to keep distanced from the access point, I was unable to freely circulate and connect with my students. Teaching outdoors to avoid RF exposures is usually dependent on weather conditions. School staff were not trained to turn off wireless devices around me. I had to teach in isolated areas (in the hallway, outdoors, etc.), and work away from colleagues.

At times, I had to reduce my working hours to manage my symptoms. For years I worked fulltime four days a week. I needed Wednesdays off, to recover from wireless exposures.

One day each week, each Sunday I fully recovered. I felt well enough to focus on lesson preparation, for the next week.

The Struggle for Workplace Accommodations: My Firsthand Experience as an Educator with Environmental Sensitivities

Teaching requires alertness, focus, and continuous interaction with students, colleagues, and families. I found political hoops exhausting, distracting, and time consuming. These political challenges interfered with program planning, personal energy, and focus in the classroom.

Lack of government, or public recognition of EHS disabilities can lead to intolerance in the form of systemic bullying and exclusion.

I connected with other EHS teachers, who found maintaining employment, or securing appropriate workplace modifications could be extremely challenging. Teachers living with EHS/EMR-S were asked to work in environments where their symptoms were difficult to manage, despite the availability of alternative communication technologies that could support their accommodation needs.

To avoid chronic or debilitating symptoms, EHS teachers must minimize time in the classroom. They seek out stairwells, storage rooms, hallways, or outdoor spaces to **prepare** classroom activities, mark student work, or take a much-needed break to recover from symptoms they associate with RF exposure.

EHS disabled teachers often feel forced to go on short term unpaid medical leave, long term leave, or premature retirement to regain their health. Taking unpaid medical leave left me facing significant financial hardship and compounded the emotional strain of managing my health. Discriminatory practices which don't effectively accommodate our needs, may

lead to isolation, limited participation, inability to collaborate freely with colleagues, facing threats of discipline or criticism.

Discriminatory practices and inadequate accommodations can restrict our participation, hinder collaboration with colleagues, leave us isolated, and expose us to criticism or threats of disciplinary action when our disability-related needs are not met, and we must find creative ways to protect ourselves.

EHS teachers may face limiting barriers to professional development and lose opportunities for equity and advancement in the workplace.

An accommodation that isolates a teacher from the school community (online teaching) may achieve daily attendance but fails to ensure meaningful inclusion and equitable access. Equitable access is possible in wired school environments.

No capable, dedicated employee should unnecessarily lose the opportunity to contribute because a reasonable technological alternative has not been considered.

Employers need to assess each situation individually and consider practical modifications, including wired communication equipment, adjustments to wireless device use, and alternative workspaces.

3.7. The Children, Families, and Educators We Support

One of the most difficult aspects of my advocacy has been working with children in my classroom who were sensitive to wireless signals, and hearing from families whose children experience debilitating symptoms that they associate with wireless environments.

I Worked with Children Injured by Wireless Radiation: Several children I worked with experienced symptoms that affected their participation at school. One child had migraines lasting several weeks; another experienced migraines for a few weeks following surgery. I moved the first child farther from the classroom's wireless access point (WAP) and arranged for the second child to spend time in a neighbouring classroom to support his recovery. Both children also received additional supervised playtime outdoors. I observed that their symptoms eased and eventually disappeared following these changes. Although I considered whether "natural grounding" contributed to their relief outdoors, these observations could not establish which factors were responsible.

Another child experienced sharp head pains at school, particularly during whole-school assemblies where cell phones were omnipresent. His symptoms affected his ability to concentrate and his school attendance. When he approached me in tears, describing the

sharp pains in his head, I coached him through deep-breathing techniques and asked him to let me know when the pains had stopped.

I noticed that his episodes coincided with my own sharp head pains. When my pains subsided, I anticipated that he would return to tell me his had also stopped—and he did. The apparent synchronization of our symptoms, including their onset and resolution, was a striking observation in my experience supporting him.

Parents have described children experiencing headaches, fatigue, concentration difficulties, sleep disturbances, and other symptoms in educational settings.

Some families report that symptoms improve when children spend time away from wireless reduced environments.

For an electrosensitive student, going to school can become an exhausting and frightening experience when the environment contains wireless technology that they associate with worsening symptoms.

What may look like an ordinary classroom to everyone else can feel very different to the student. They may experience headaches, fatigue, tingling or burning sensations, dizziness, nausea, sleep difficulties, physical discomfort, and difficulty concentrating. These are among the symptoms reported by people who describe themselves as electromagnetically hypersensitive, although symptoms vary considerably from person to person.

The effects can extend beyond physical symptoms. A student who repeatedly becomes unwell at school may begin to feel anxious about entering the classroom, frustrated about falling behind, isolated from classmates, or afraid that adults will not believe what they are experiencing. Concentrating on a lesson becomes much harder when the student is simultaneously trying to cope with physical discomfort.

Over time, the emotional burden can become significant. The child may feel different from their peers, embarrassed about needing accommodations, or guilty because their needs appear to inconvenience others. They may begin avoiding activities, school events, technology-based assignments, or even school altogether. A student who once loved learning can begin associating school with pain, exhaustion, fear, and helplessness.

Students with EHS can be dismissed from school (encouraged by the School Board not to come to school for their own health and wellness), or a bright student, encouraged to attend an RF reduced technical school. Segregation, isolation, and limited access to extra curricular activities ignore the growing social needs of the child.

Each child's adverse experience deserves to be taken seriously.

Taking a child's symptoms seriously does not require adults to settle the scientific question of what causes them. It means recognizing the child's reported experience, assessing other possible contributors, obtaining appropriate medical support, and considering reasonable measures that may reduce the child's functional difficulties. WHO itself notes that, regardless of cause, symptoms attributed to EHS can be severe and disabling.

3.8. Students and Teachers with EHS: The Exhaustion of Learning and Teaching Through Persistent Symptoms in Wireless Schools

For an electrosensitive child or teacher, managing persistent and sometimes debilitating symptoms while trying to participate fully in school or work can be profoundly exhausting.

It can mean waking up already tired and having to calculate how much energy is available for the day. It can mean entering a classroom and immediately becoming aware of physical symptoms, while simultaneously trying to listen, concentrate, teach, learn, communicate, meet deadlines, and appear as though everything is fine.

There is the physical exhaustion caused by the symptoms themselves, compounded by the mental and emotional exhaustion of continually managing them.

A child may be trying to follow a lesson while experiencing headache or head pressure, tingling, nausea, dizziness, fatigue, discomfort, difficulty concentrating, or other symptoms they associate with their environment.

A teacher may be experiencing similar difficulties while standing in front of a classroom, supervising students, preparing lessons, responding to questions, attending meetings, completing paperwork, and carrying the responsibility of caring for others.

Meanwhile, everyone else may appear to be carrying on normally.

The student watches classmates participate, socialize, play sports, complete assignments, and move from one activity to another. The teacher watches colleagues teach full days, attend meetings, plan lessons, supervise activities, and remain after school to complete additional responsibilities.

Trying to keep up can become a full-time effort in itself.

The child or teacher may have to constantly monitor their surroundings, identify potential triggers, decide where they can sit or work, determine when they need to step away, and plan how to recover afterward. A simple school day can require an extraordinary amount of physical and mental energy.

There can be a significant cognitive burden: trying to focus long enough to listen, follow and contribute to class discussions, processing and retaining instructions, organizing tasks,

remembering assignment deadlines, and explaining accommodation needs. Together, these competing demands can make it difficult to keep pace, communicate clearly, participate fully in classroom learning, and social interactions,

Wireless Exposures, Physical injuries, and the Emotional Burden that follows

Having to continually explain an invisible or poorly understood disability can itself become exhausting. Instead of being able to focus entirely on learning or teaching, a person may find themselves spending precious energy advocating for the conditions they need, simply to participate.

For a child, this can interfere with the ordinary experiences of childhood. Energy that should be available for learning, friendships, creativity, play, sports, and discovering who they are may instead be consumed by managing symptoms and trying to get through the day.

For a teacher, the consequences can be equally significant. Teaching already requires sustained attention, emotional presence, communication, movement, multitasking, and constant responsiveness. Trying to perform all of these responsibilities while managing persistent symptoms can leave very little energy for recovery.

And when the school day ends, **the exhaustion doesn't necessarily end with it.**

There may still be planning, marking, household responsibilities, family commitments, medical appointments, travel, and the ordinary demands of life. Sometimes the only option is to withdraw, rest, or sleep while knowing that another demanding day is waiting.

Over time, this can become an exhausting weekly cycle. By Sunday evening, their symptoms may finally subside, offering a brief chance to feel like themselves again free from migraine, brain fog, and tachycardia. Those few hours of relief are precious yet overshadowed by the knowledge that returning to school on Monday may bring another week of symptoms, with little opportunity to recover until the following weekend.

The child or teacher may appear to be functioning, but functioning should not be confused with thriving.

What others see is the completed task. What they may not see is the enormous effort required to accomplish it.

This is why compassionate, individualized accommodation matters. Appropriate support is not about giving someone an unfair advantage. It can be about reducing unnecessary barriers so that the energy they have can be directed toward **learning, teaching,**

contributing, participating, and living, rather than constantly fighting through an environment that is making participation harder.

Every child and every teacher deserves the opportunity to use their energy for the things they love - not to spend all of it simply trying to endure the day.

These symptoms warrant respectful investigation and appropriate medical assessment.

For affected families, the consequences can be substantial.

Children may miss school, struggle to complete assignments, lose opportunities for social interaction, or require alternative educational arrangements.

Parents may spend considerable time and resources seeking assessments, accommodations, and suitable learning environments.

A child's opportunity to learn should not depend upon their ability to tolerate every environmental toxin in a classroom.

Canadian Educators for Safe Technology believes that children should not unnecessarily lose access to education when practical wired accommodations are available.

Schools should consider wired connectivity, alternative learning spaces, and individualized accommodations where appropriate.

One Example of Serious and Potentially Life-Threatening Symptoms Reported by Students in Wireless Classrooms

When children aren't accommodated with RF-reduced learning environments, some children may experience neurological or cardiac symptoms: Following the installation of wireless access points in classrooms in 2009, a journalist reportedly described serious cardiac concerns among students in Collingwood. 17 students were wearing heart monitors, two children with cardiac vulnerabilities had died, and a teacher had used a defibrillator to resuscitate a student who collapsed in the gymnasium. A family in the area also withdrew their daughter from school after her episodes of tachycardia just at school. Her parents reported that the episodes did not recur in their RF-reduced home and that heart surgery scheduled six weeks later was subsequently cancelled. The young girl did not return to school.

Where suitable accommodations and wired alternatives remain unavailable, affected individuals can face substantial barriers to participation in education.

Students and teachers with electromagnetic disabilities may be forced to seek costly and emotionally taxing tribunals to advocate for basic rights and accommodations. Often EHS

disabled persons often lack the resources to pursue legal support, encountering systemic barriers and policies that fail to address their needs.

This additional hurdle highlights the urgent need for inclusive, RF-reduced classrooms, and proactive Safe Tech Awareness policies that promote equitable technology opportunities without adversarial processes, ensuring inclusive opportunities for all students and teachers to thrive in a safe and supportive environment.

3.9. The Impact of RF-EMR Wireless Technologies: Emerging Physical and Mental Health Concerns in Canadian Classrooms

The widespread installation of wireless access points, implementation of Bring Your Own Device (BYOD) policies, and proliferation of smartphones, tablets, Chromebooks, and other wireless-enabled devices have significantly transformed Canadian learning environments.

Children's Increased Vulnerability to Radiofrequency Electromagnetic Radiation (RF-EMR)

Wireless devices placed directly on children's laps, smartphones held against their bodies, and wireless virtual reality headsets positioned close to their developing brains can expose children to radiofrequency electromagnetic radiation (RF-EMR) at close range. These devices emit intermittent or continuous RF signals when transmitting data, depending on their design, connectivity, and use. Because RF exposure generally increases with proximity to a transmitting antenna, the placement of wireless devices directly against the body warrants particular consideration, especially during prolonged use.

Children deserve special consideration because their brains, nervous systems, reproductive organs, and other physiological systems are still developing. Their smaller body dimensions, age-dependent tissue characteristics, and differences in anatomy can influence how RF energy is absorbed and distributed within the body. The degree of absorption depends on factors such as frequency, antenna position, device power, body size, and tissue properties.

There is overwhelming evidence that precautions are not yet, but should be taken, especially for children, pregnant women, and persons with compromised health.

According to leading, non-industry funded scientific experts, children are particularly, physiologically vulnerable due to their rapidly developing bodies and nervous systems, which are more susceptible to the adverse effects of microwave exposures,^{1,2}

as RF-EMR penetration extends proportionally deeper into their brains.^{3,4,5} Children have thinner skulls, higher conductivity tissues,⁶ and more active stem cells that are sensitive to RF-EMR.⁷ Fetal exposures can cause permanent developmental delays.^{8,9}

Furthermore, since children's developing brains are more vulnerable to neurotoxic exposures, which can negatively impact childhood development, their cumulative lifetime exposure increases risks of adverse health effects.

Epidemiologist Dr. Devra Davis reports digitally pulsed microwave frequency radiation (RF-EMR) can interfere with hormones that regulate mental health and can spike glucose in the brain, which can present as ADHD behaviours. Microwave signals can interfere with the release of hormones which regulate sleep, metabolism, stress response and cellular function.¹⁰ Hormone dysregulation can lead to mental and physical harms including anxiety and depression.¹¹ Legally allowed RF-EMR levels are linked to tumor promotion, cognitive impairment, behavioural problems, sleep disturbances, injury to sensitive tissues and organs (such as eyes, gonads), increased generational risk of early onset colon and rectal cancer,^{12,13,14} memory damage, DNA/genetic damage,^{15,16,17} blood-brain barrier damage, oxidative stress, cardiac issues,¹⁸ thyroid dysfunction, and endocrine disruption.¹⁹ Dr. Davis reports many of these effects could be irreversible, with grave consequences for our children's future.

Children also have a longer remaining lifespan during which repeated exposures may occur. As wireless technologies are increasingly introduced during early childhood, some individuals may experience decades of cumulative exposure.

Scientific evidence reinforces the importance of age-appropriate technology practices and continued independent research, particularly concerning developing children, prolonged close-body exposure, and emerging technologies such as wireless virtual reality headsets.

CE4ST recommends a precautionary, practical approach that reduces unnecessary RF exposure without compromising children's access to educational technology.

Measures include prioritizing wired Ethernet connections, using offline learning resources when internet access is unnecessary, disabling wireless transmitters when not required, and avoiding prolonged placement of actively transmitting devices directly against the body. Wired virtual reality systems and other non-wireless alternatives should also be considered where feasible.

By integrating these practices into school technology policies, educational institutions can provide reliable digital learning opportunities while offering greater choice, supporting accessibility, and addressing reasonable concerns about children's long-term environmental exposures.

Alongside the educational opportunities these technologies provide, educators across Canada have reported growing concerns about declining student attention, behavioural challenges, emotional regulation, mental health, and the increasing demands placed on teachers and school administrators.

Digital Distraction, Student Behaviour, and Academic Performance

The pervasive presence of smartphones and other connected devices has introduced significant distractions into classrooms. Social media platforms, online gaming, messaging applications, and constant digital notifications compete for students' attention, potentially undermining their ability to concentrate, engage meaningfully in lessons, retain information, and complete academic tasks.

Teachers see firsthand the grievous impact wireless devices can have on students. Educators have reported increasing difficulties maintaining students' attention, encouraging sustained engagement, and addressing impulsive or disruptive behaviours.

Excessive or problematic digital media use has also been associated in some studies with anxiety, attention difficulties, sleep disruption, and challenges with emotional regulation.

Concerns about potentially addictive platform features and their effects on children have also prompted significant legal action. In 2024, four major Ontario school boards initiated litigation against companies associated with TikTok, Meta, and Snapchat, initially seeking approximately \$4.5 billion in damages. The school boards alleged that the platforms were designed in ways that negatively affected student attention, learning, and mental health, creating substantial additional demands on publicly funded education systems. These remain allegations subject to legal proceedings, rather than judicially established findings.

The litigation highlights broader concerns about the responsibility of digital technology companies to consider children's developmental needs and the potential consequences of their product designs.

Additional investments in school-based mental health services, including social workers, psychologists, counsellors, and specialized educational supports, could help address these challenges. Stronger age-appropriate platform safeguards, responsible design practices, and digital literacy programs are also important considerations.

The Need to Distinguish Screen-Related Effects From RF-EMR Exposure

In addition to concerns about digital distraction and problematic technology use, CE4ST has raised questions about the potential biological effects of radiofrequency electromagnetic radiation (RF-EMR) emitted by wireless infrastructure and devices.

Researchers, including epidemiologist Dr. Devra Davis, have raised concerns about possible biological effects of RF exposure. Scientific evidence shows interactions involving oxidative stress, neurological activity, hormonal regulation, and other physiological processes.

Devra Davis provides evidence that RF signals from wireless devices, can spike glucose in the brain, and lead to attention-deficit/hyperactivity disorder (ADHD) or other mental health conditions. Studies suggest RF signals can also impact hormones, which can increase anxiety, or depression.

CE4ST recommends protective cautionary ALARA measures particularly in relation to developing children, prolonged exposure, and individuals who may have heightened medical vulnerabilities.

Environmental Sensitivities, Student Absenteeism, and Workplace Accessibility

CE4ST has also received accounts from students, parents, educators, and school staff who report physical symptoms triggered by wireless emissions. Reported symptoms include headaches, migraines, fatigue, dizziness, concentration difficulties, cognitive impairment, and other functional limitations.

Some affected individuals report improved well-being and an increased capacity to attend school or work in environments where wireless transmissions are reduced or replaced with wired technologies.

For students experiencing debilitating symptoms, frequent absences can interfere with academic progress, social development, and participation in school activities. For teachers and staff, recurring symptoms and absences may affect their ability to maintain employment and fulfill professional responsibilities.

As the founding director of Canadian Educators for Safe Technology (CE4ST), and as a retired Ontario educator with firsthand experience of electromagnetic hypersensitivity, I am particularly concerned about the barriers faced by medically vulnerable students and employees, including pregnant staff and individuals with documented environmental sensitivities.

Our organization believes that schools should investigate reported health concerns appropriately and consider reasonable accommodations, including wired connectivity, Ethernet-enabled devices, alternative workstations, and reduced wireless transmissions where feasible.

3.10. Recommendations for Healthier, More Focused, and Inclusive Learning Environments

CE4ST recommends that school boards adopt comprehensive technology policies addressing both digital well-being and environmental accessibility. These policies should promote responsible device use, limit unnecessary classroom distractions, strengthen cyberbullying prevention, provide digital citizenship education, and support students experiencing mental health or behavioural difficulties.

At the same time, schools should preserve wired connectivity options, provide alternatives to continuous wireless access where practical, and establish clear accommodation procedures for students and staff experiencing significant functional limitations.

Wireless network design should be reviewed to ensure equipment is appropriately configured and unnecessary transmissions are minimized without compromising educational requirements.

We also recommend that federal and provincial authorities support independent research into the long-term biological effects of RF-EMR exposure, including potential implications for developing children and medically vulnerable populations.

Our goal is not to eliminate beneficial educational technologies, but to ensure that their implementation supports students' physical and mental well-being, protects instructional time, respects accessibility needs, and strengthens the learning environment.

By combining evidence-informed digital wellness policies, responsible technology practices, appropriate mental health resources, and accessible wired alternatives, Canadian schools can create more focused, inclusive, and supportive environments in which students and educators have the opportunity to thrive.

3.11. My Classroom Demonstrated That Wired Technology Works

Despite the challenges I experienced, I found ways to continue integrating RF-reduced, wired digital technology into my teaching.

In my classroom, I used a notebook computer connected to the internet through a wired connection, with its wireless capabilities disabled.

Students could access educational resources through Ethernet connections or use devices in airplane mode after downloading learning materials. They continued learning, researching, completing assignments, and engaging with digital educational programs.

The technology remained available. What changed was the method of connectivity. This experience demonstrated that continuous wireless transmission was not necessary for every educational activity.

Wired technology provided reliable access to digital resources while allowing me to manage my classroom environment more effectively.

It also demonstrated an important principle of inclusive education.

Technology should accommodate the diverse needs of students and educators, with wired connections which contain signals supporting safer, more accessible learning environments.

Accommodations Required for Teachers Who Have EHS

Homeroom Classroom

- ON/OFF switch for classroom access point (AP), or disable wireless capability of the AP
- Students who have competing disabilities (e.g., wireless-emitting medical device that cannot be turned off and cannot be wired) are not assigned to this classroom
- Accommodation signs posted: outside classroom; inside classroom; at common areas, office, staffroom, library, gymnasium, staff washrooms
- Staff entering classrooms of EHS-disabled staff announce their cell phone and other wireless devices and wearables are: powered off, or all their antennas are disabled with wireless capability deactivated, or wireless items were not brought to this classroom
- Students download data, then deactivate all microwave emitting antennas, or use wired devices (ethernet cables, adaptors)
- RF detection meter with alert functions turned on is plugged into a power source to enable continuous monitoring of RF levels in the classroom — to alert teacher if levels exceed $100 \mu\text{W}/\text{m}^2$ as ambient emissions may vary and may include accidental emissions from cell phones/devices
- Communication with the school community: Notes sent home with students include instructions that support staff who have environmental sensitivities, e.g., at-school rules for cell phones, wearables, deactivating devices, and storing devices.
- “Cell Phone Hotel”: Before entering the signed classroom, students assure all cell phone and other wireless device antennas are off/disabled, then upon entering the classroom students put their cell phones into a metal box (provided by the school). Non-medically prescribed wearables without deactivation capabilities remain at home.

- A student monitor uses the RF meter to check devices upon entry, and instructs students to immediately turn off each antenna that may accidentally be on.
- Arrange whatever fewer or additional accommodations an EHS-disabled teacher may request, in necessity, as health status may vary or the number and location of sources and levels of ambient RF emissions may vary.

Whole School Environment

- An RF meter is stored in the office, and batteries as backup power source
- Teacher with EHS disability can be assigned to outdoor yard duties to assist in recovery from RF exposures
- Existing staff and new hires are trained regarding e-hygiene in common areas (e.g., staffroom, photocopy room, library, office) such that all wireless capable devices are set to airplane mode and with a manual check that Cellular, Wi-Fi, and Bluetooth antennas are deactivated, and such that wireless is not activated until after exiting a common area.
- Additional training, including students: all staff and students instructed to routinely deactivate all antennas on devices before entering a hallway near the classroom where EHS accommodation has been identified.
- Division and staff meetings held in classroom/room with in-room and nearby wireless network signal emissions (e.g., wireless router) turned off and wireless capability on all in-room devices is deactivated prior to entry or staff leave cell phones and other devices far from the meeting room. As a last resort only, the EHS-disabled teacher participates remotely from a classroom that meets the requirements in the previous sentence and has a non-wireless connection to Internet.
- Division workgroups: the school or board provides a switch that can connect 6 laptops to Internet via plug-in cords/cable
- Wireless electronic polling and voting are not permitted, arrange additional accommodations an EHS-disabled teacher may request, in necessity, as health status may vary or the number and location of sources and levels of ambient RF emissions may vary.

Whole School Events

Here are examples of additional accommodations that may be necessary from time to time:

- **School program/flyer – written announcement** “To support students and staff with environmental disabilities please put your cell phone in airplane mode, and turn off Wi-Fi and Bluetooth, or turn off your phone completely. With these three antennas disconnected you can still take pictures of this event. Do not use “vibrate” or “silent modes” which emit microwave signals that can injure Electrosensitive, disabled

people. Please exit the room to send texts or make phone calls. Thank you for your support.”

- **Verbal and on-screen announcements** (same as announcement above), at every gym assembly.
- **Wired audio-visual systems (e.g., microphones, audio speakers, televisions, etc.).** If wired options are not available, wireless equipment should be distanced at least 50 feet away from designated area.
- **Event staff must notify EHS-disabled persons (*before these persons enter the event area*) where any wireless equipment is located**, including the general whereabouts of any attendees known to be wearing medically prescribed wireless devices (including implants) that will not be temporarily deactivated.

Elementary Schools

In primary/junior grades (Kindergarten to Grade 8) turning off one classroom access point, wiring the teacher’s devices, and instructing students to use safe tech practices may accommodate a disabled teacher. Various non-wireless equipment (e.g., powerline carrier connected to a 6-port switch) plug-in cords, and any needed adaptors can provide wired connections for 6 students (small group work). Access to an RF meter can ensure the environment is appropriate for EHS disabled teachers. Arrange whatever fewer or additional accommodations an EHS-disabled teacher may request, in necessity, as health status may vary or the number and location of sources and levels of ambient RF emissions may vary.

High Schools

In high school, multiple on/off switches for rotary classes, containment of cell phones, and student and staff training may be required. Additional classrooms may be wired, if necessary. Access to an RF meter can ensure the environment is appropriate for EHS-disabled teachers. Arrange whatever fewer or additional accommodations an EHS-disabled teacher may request, in necessity, as health status may vary, or the number and location of sources and levels of ambient RF emissions may vary.

3.12. A Positive Example of Accessibility: Women's College Hospital

One of the most encouraging experiences in my journey occurred when healthcare professionals and administrative staff worked together to accommodate my needs.

During appointments at Women's College Hospital, arrangements were made to help me avoid areas where I experienced significant symptoms.

I was able to obtain my hospital identification bracelet through an alternative admission process. Staff arranged access through quieter hallways and an elevator to a lower-RF clinical space.

Patients in the waiting area were provided guidance about wireless device use, and my physician accommodated my needs during appointments.

These arrangements did not require eliminating wireless technology from the entire hospital. They simply required planning, communication, cooperation, and respect. For me, the difference was extraordinary. Instead of arriving at an appointment already physically overwhelmed, I could focus on receiving medical care. I was able to participate with greater comfort and dignity.

This experience showed me what can happen when an institution genuinely commits to accessibility.

Sometimes the most meaningful accommodation is not a costly technological innovation. It is a willingness to listen and make thoughtful, practical changes.

I believe this example shows accessibility planning is possible in hospitals, medical clinics, schools, workplaces, government offices, and other essential services across Canada.

Part 4 - From Personal Experience to National Advocacy

4.1. Becoming an Advocate for Safer Technology in Schools

Approximately seven years before my retirement, I became increasingly involved in advocating for precautionary technology practices in educational settings.

I worked with educators to raise awareness about wireless exposure concerns and the availability of wired alternatives.

Through the Elementary Teachers' Federation of Ontario (ETFO), we advanced resolutions encouraging safer technology practices and accommodations for students and staff.

These efforts included proposals to:

- Provide wired connectivity and alternative technologies where appropriate.
- Permit wireless functions to be disabled when unnecessary for instruction.
- Consider the needs of pregnant educators and environmentally vulnerable staff.

- Provide information about wireless equipment and exposure-reduction practices.
- Encourage responsible technology use and workplace accessibility.

I participated in annual meetings attended by hundreds of teacher representatives, collectively representing approximately 80,000 educators. My goal was to advance motions promoting safe technology practices, wired connections, and meaningful accommodations to support responsible technology use and inclusive participation.

4.2. Founding Canadian Educators for Safe Technology

My professional and personal experiences eventually led me to help establish Canadian Educators for Safe Technology (CE4ST).

CE4ST is a national volunteer-based non-profit organization concerned with the health, safety, accessibility, and well-being of students, educators, school staff, families, and communities.

As founding director, I have worked with EMF experts and people who report significant symptoms associated with wireless environments.

Our organization reviews scientific research, communicates with medical and technical professionals, supports affected families, and provides submissions to government agencies.

We advocate for independent scientific assessment, transparent telecommunications policies, meaningful public consultation, and practical wired alternatives.

Our work is guided by a fundamental principle:

Technological innovation should expand opportunities for Canadians, not create preventable barriers to education, employment, healthcare, housing, or community participation.

4.3. The Experts and Professional Organizations We Work With

Through CE4ST, I have had opportunities to consult with, learn from, and collaborate with physicians, scientists, researchers, engineers, and environmental health professionals.

My previous submissions reference the work and perspectives of Dr. Riina Bray, Dr. Paul Héroux, Dr. Devra Davis, the late Dr. Anthony B. Miller, and the late Dr. Martin Blank, among others.

Our organization's work is also informed by research and recommendations from the International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF),

Environmental Health Trust, Prevent Cancer Now, Canadians for Safe Technology, Environmental Health News, and other environmental health organizations worldwide.

I have participated as an invited speaker at two electromagnetic fields medical symposiums associated with Women's College Hospital.

I have also served as a workplace accessibility panelist for engineers and staff and contributed to international discussions concerning children's rights in the digital age.

These experiences have reinforced the importance of bringing together expertise from clinical medicine, biology, epidemiology, toxicology, engineering, occupational health, environmental science, and accessibility.

We believe government policy should be informed by transparent, multidisciplinary scientific review.

Part 5 - Biology, Children's Health, and Safety Code 6

5.1. All Life Is Electromagnetic: The Biological Foundation

All living organisms depend upon electrical and electromagnetic processes. The heart relies upon electrical signalling to coordinate its contractions. The nervous system transmits information through electrochemical impulses. Cells maintain electrical potentials across their membranes, enabling communication, transport, and regulation of essential biological functions. Living organisms have evolved within Earth's natural electromagnetic environment.

Modern society has introduced additional electromagnetic exposures through telecommunications, electrical infrastructure, wireless networks, and electronic devices. Radiofrequency electromagnetic radiation is non-ionizing, meaning its photons do not carry sufficient energy to directly remove electrons from atoms or molecules.

However, RF energy can interact with biological tissues. At sufficiently high exposures, RF energy produces heating. Researchers have also investigated whether other biological effects occur at lower exposures.

The central scientific questions concern the conditions under which biological interactions occur, whether they result in adverse health outcomes, and whether existing standards adequately protect the population.

CE4ST believes these questions deserve independent, comprehensive scientific investigation.

5.2. Peer-Reviewed Research on Biological Effects of RF-EMR

CE4ST has reviewed and referenced peer-reviewed research investigating biological responses to radiofrequency exposure. (See references)

Areas of investigation include:

Oxidative stress: Experimental studies have examined how RF exposure influences reactive oxygen species, antioxidant activity, and cellular stress responses.^{20, 21}

DNA damage: Some laboratory studies have reported markers of genetic damage following particular exposure conditions.^{22, 23}

Neurological effects: Researchers have investigated changes in brain activity, sleep, cognition, and neurological functioning.²⁴

Blood-brain barrier permeability: Experimental research has shown the effects of RF exposure on the permeability or functioning of the blood-brain barrier.^{25,26}

Reproductive effects: Studies have demonstrated effects on sperm quality, reproductive tissues, and developmental processes.^{27,28, 29, 30, 31, 32}

Cardiovascular effects: Research has investigated changes in heart-rate regulation and other physiological measures.³³

Cancer: Experimental and epidemiological research has examined how RF exposure may contribute to cancer risk.^{34, 35, 36, 37,38}

These studies provide important evidence of biological interactions, although the findings vary considerably by exposure conditions, study design, and outcome.

Not every reported biological effect constitutes an adverse health effect, and some findings remain disputed or have not been independently replicated.

CE4ST recommends rigorous evaluation of the complete body of evidence, including studies that report effects and studies that do not.

5.3. Cancer Prevention and Long-Term Exposure

Cancer prevention has been a recurring concern. In October 2024, our organization submitted a brief to the House of Commons Standing Committee on Health concerning RF-EMR as a potential environmental contributor to childhood cancers.

The International Agency for Research on Cancer classified RF electromagnetic fields as possibly carcinogenic to humans (Group 2B) in 2011.

The United States National Toxicology Program reported evidence of carcinogenic activity in male rats under specific experimental exposure conditions.

These findings warrant scientific consideration.

Our organization has also reviewed studies regarding cancer clusters near telecommunications infrastructure. Such reports may justify public health investigation.

We recommend independent epidemiological research, transparent exposure assessment, and continued investigation of potential long-term health outcomes.

5.4. Children, Development, and Cumulative Exposure

Children deserve particular consideration in environmental health research. Their bodies and nervous systems are developing, and they may experience many decades of exposure to modern telecommunications technologies.

In schools, RF emissions can originate from wireless access points, laptops, tablets, smartphones, and nearby cellular infrastructure.

Actual exposure depends on numerous factors, including transmitted power, distance, frequency, device activity, antenna characteristics, and building design.

CE4ST recommends that schools minimize wireless transmissions while maintaining and further developing access to wired, educational technology.

[The International Declaration on the Human Rights of Children](#) in the Digital Age calls on authorities to apply legal principles to protect children from wireless pollutants.

Wired workstations, Ethernet adapters, appropriately configured networks, and offline learning resources can provide practical alternatives.

Children should also receive age-appropriate education about responsible technology use and digital well-being.

5.5. Health Canada's Safety Code 6 – Inadequate Public Health Protection

The World Health Organization's cancer research agency classifies radiofrequency radiation as a *possible* carcinogen.³⁹ Some leading experts conclude it should be classified a *known* carcinogen. Some publications express concern about serious conflicts of interest.⁴⁰

In 2025, Some of the WHO's commissioned reviews concluded there was "high certainty" of evidence linking radiofrequency exposures to cancer in animals and reproductive toxicity.⁴¹

Health Canada's Safety Code 6 establishes limits for human exposure to radiofrequency electromagnetic fields.⁴²

These limits are intended to protect against established adverse health effects, but many people are experiencing mild, moderate, or serious health effects triggered by RF-EMR emissions.

Health Canada's Safety Code 6 does not yet include multiple biological effects, or the roles of intensity, exposure duration, and modulation on the biological effects of radiofrequency radiation. It does address ocular and nerve stimulation effects.⁴³

Canada's Minister of Health Philpott's responded to CE4ST's inquiries about Recommendation #9 from the Report of the Standing Committee on Health (Ben Lobb, Chair) (41st Parliament, Second Session): Radiofrequency Electromagnetic Radiation. She claimed:

"It is Health Canada's position, and that of the Expert Panel of the Royal Society of Canada, that current measures on RF EMF protect our most vulnerable."

However, based on current research, there is overwhelming evidence that precautions are not yet, but should be taken, especially for children, pregnant women, and persons with compromised health.

According to leading, non-industry funded scientific experts, children are particularly, physiologically vulnerable due to their rapidly developing bodies and nervous systems, which are more susceptible to the adverse effects of microwave exposures,^{44, 45} as RF-EMR penetration extends proportionally deeper into their brains.^{46, 47, 48} Children have thinner skulls, higher conductivity tissues,⁴⁹ and more active stem cells that are sensitive to RF-EMR.⁵⁰ Fetal exposures can cause permanent developmental delays.^{51, 52} Furthermore, since children's developing brains are more vulnerable to neurotoxic exposures, which can negatively impact childhood development, their development,⁵³ cumulative lifetime exposure increases risks of adverse health effects.

Minister Philpott claimed that Safety Code 6 human exposure limits, established by Health Canada, are designed to provide protection for all age groups, including infants and children, on a continuous basis (24 hours a day/seven days a week). This means that if someone, including a small child, were to be exposed to RF energy from multiple sources for 24 hours a day, 365 days a year, within the Safety Code 6 limits, there would be no adverse health effects."

As implemented in classrooms, Safety Code 6 (SC6) guidelines may not adequately address concerns about everyday exposure patterns involving multiple wireless sources, including access points, cellular signal boosters, cell phones, and tablets. These concerns include how devices are used: on children's laps near reproductive organs, beside their heads, or, in the case of wireless virtual reality headsets, worn directly against the head.

The long-term effects of RF microwave exposures approximately 6 hours a day, 5 days a week, for 40 weeks each year is still unknown. Like asbestos and DDT, it can take decades before the wireless induced injuries (cancers, chronic illnesses, or deaths) are detected in otherwise healthy people. In the absence of a robust control group innovative research methods are necessary.

Furthermore, cell tower antennas on or near school property and numerous small 5G emitting antennas close to schools create additional emissions.

Reports of cancer clusters within 500 metres of cell towers raise concerns about the adequacy of current exposure standards and warrant rigorous investigation, although proximity alone does not establish causation.

In addition to the substantial evidence of biological harm below legally allowable SC6 exposure levels, the Director of Women's College Hospital informs us that at least 3% of Canadians (1 million), are now electrosensitive. In Ontario alone 2,400 of 80,000 elementary teachers, 4,790 of 159, 687 Secondary teachers, and 60,000 of 2 million Ontario students could be mildly, moderately or severely disabled by wireless radiation.

Safety Code 6 (SC6) does not provide adequate EMR-RF protection for Pregnant Staff (Fetuses), Children and Vulnerable Adults. Health Canada's (HC) Safety Code 6 (SC6) guidelines at 2 – 10,000,000 $\mu\text{W}/\text{m}^2$ is primarily based on thermal (heating tissue) effects of RF-EMR and do not adequately reflect the breadth of current research repeatedly demonstrating a wide range adverse, biological effects.

The International Commission on the Biological Effects of Electromagnetic Fields reveals that scientific evidence invalidates health assumptions underlying the FCC and ICNIRP exposure limit determinations for 5G radiofrequency radiation emissions.⁵⁴ Research data indicate that electromagnetic energy is more biologically potent in causing effects than thermal changes. Current RF-EMR guidelines based on acute continuous-wave exposure are inadequate for health protection.⁵⁵

This is a particular concern in children, given the rapid expansion of use of [wireless technologies](#), the greater susceptibility of the developing [nervous system](#), the hyperconductivity of their [brain tissue](#), the greater penetration of [radiofrequency radiation](#) relative to [head size](#) and their potential for a longer lifetime exposure.⁵⁶

CE4ST has repeatedly requested an independent review of the scientific evidence underlying Canada's RF exposure policies.

Our concerns include prolonged exposure, multiple simultaneous sources, newer telecommunications technologies, and the circumstances of medically vulnerable students and staff in schools, including pregnant staff.

We believe it is important to distinguish regulatory compliance from individualized accessibility needs. An environment may comply with applicable exposure limits while an individual still experiences symptoms that substantially affect their ability to participate.

Compliance with Safety Code 6 fails to resolve EHS accommodation requests.

We recommend that Health Canada transparently review the current evidence regarding biological effects of radiofrequency emissions and provide practical guidance for schools, workplaces, healthcare facilities, and other public institutions.

Health Canada conducted a major review. *“Analysis of Recommended Localized Human Exposure Limits for Radiofrequency Fields in the Frequency Range, 6 GHz to 300 GHz.*

The review did not find any human studies examining whether exposure to radiofrequency electromagnetic fields between 6 and 300 GHz affects cancer risk, eye health, reproduction, thinking and memory, immune function, or other health outcomes. ” In that review, page 32: *“No human studies were identified that assessed endpoints such as cancer, ocular effects, reproductive system effects, cognitive effects, impacts on the immune system, non-specific symptoms or any other adverse health outcomes in response to exposure to RFEMF in the 6-300 GHz frequency range.”* **This means there is a gap in the human evidence reviewed.**⁵⁷

The International Agency for Research on Cancer (IARC) Classifies Radiofrequency Electromagnetic Fields as Possibly Carcinogenic to Humans (Group 2B).⁵⁸

5.6. Summary of concerns raised in five publications on radiofrequency radiation and public health:

A number of publications raise important questions about the adequacy of radiofrequency electromagnetic field (RF-EMF) exposure limits, evidence of biological effects, cancer and reproductive risks, independent scientific assessment, and the need to periodically review Canadian public health protections.

Central concern: Independence and transparency in scientific risk assessments.

The authors argue that evaluations of RF radiation and 5G may be compromised when experts have financial or professional relationships with the telecommunications industry or when a limited network of experts dominates assessment committees.⁵⁹

Their principal concerns include:

- Potential conflicts of interest in scientific advisory committees.
- Insufficient consideration of studies reporting biological effects below established exposure limits.
- Inadequate assessment of long-term exposure and newer wireless technologies.
- A need for greater transparency, scientific independence, and diversity of expertise in public health evaluations.

Implication for government: Establish transparent, multidisciplinary scientific reviews with publicly disclosed conflicts of interest and independent scrutiny of the evidence.

This WHO-commissioned systematic review examined studies of RF-EMF exposure and cancer in laboratory animals. This review reported high certainty of evidence for increased heart schwannomas in exposed male rats and moderate-to-high certainty for certain glial-cell brain tumours. These findings strengthen the experimental-animal evidence relevant to RF carcinogenicity assessments.

Melnick and Moskowitz, on behalf of ICBE-EMF, 2026 regarding Environmental Health applied quantitative risk-assessment methods to experimental animal data, examining cancer and male reproductive toxicity. They concluded that existing exposure limits may not adequately address long-term cancer and reproductive outcomes. They reported a central concern: federal government should strengthen research, transparency, public awareness, and accommodation relating to RF exposure.

5.7. Emerging Scientific Evidence and the Need for an Independent Review of Radiofrequency Exposure Guidelines

Recent scientific publications raise important questions concerning the adequacy of existing radiofrequency electromagnetic field (RF-EMF) exposure guidelines, particularly regarding long-term exposure, cancer risk, reproductive toxicity, and the independence of scientific risk assessments.⁶⁰

These publications raise questions about whether current regulatory approaches adequately incorporate evidence of potential long-term health effects, including outcomes that may not be explained by established acute tissue-heating mechanisms.⁶¹

A 2025 World Health Organization-commissioned systematic review reported high-certainty evidence for increased heart schwannomas in laboratory rats exposed to RF-EMF, alongside evidence concerning certain brain tumours. A subsequent 2026 publication by researchers representing the International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF) applied quantitative risk-assessment methods to experimental animal findings and concluded that existing exposure limits warrant independent reassessment.⁶²

Additional scientific commentary emphasizes the importance of transparent, multidisciplinary evaluations conducted by experts without unmanaged conflicts of interest.

These concerns are particularly relevant to Canada, where the House of Commons Standing Committee on Health (HESA) issued 12 recommendations in 2015 addressing RF research, carcinogenicity, scientific transparency, public awareness, and accommodation for individuals experiencing electromagnetic hypersensitivity.

More than a decade later, Parliament has an opportunity to examine progress on those recommendations and consider the implications of newer scientific findings.

An updated review should examine evidence from human epidemiology, experimental animal studies, and biological research; evaluate the relevance of exposure duration and cumulative exposure; and assess whether existing guidelines adequately address potential risks and the needs of vulnerable populations.

An independent, transparent, evidence-informed reassessment would strengthen public confidence in federal health protections and help ensure that telecommunications policies remain responsive to scientific developments, accessibility concerns, and the diverse needs of Canadians.⁶³

5.8. Recommended priorities for HESA and Health Canada

- an update to Parliament on the 12 HESA recommendations; an independent scientific review that explicitly examines the 2025–2026 animal cancer and reproductive toxicity evidence alongside human research;
- a separate assessment of accessibility policies and practical accommodations for individuals experiencing electromagnetic hypersensitivity.

HESA's 2015 report included recommendations concerning independent scientific review, carcinogenicity, public education, and EHS accommodation. The newer publications therefore provide a concrete basis for requesting an update on existing parliamentary recommendations, rather than presenting these concerns as entirely new issues.

5.9. The 2015 House of Commons Standing Committee on Health Report

In June 2015, the House of Commons Standing Committee on Health published its report, *Radiofrequency Electromagnetic Radiation and the Health of Canadians*.

The report included recommendations concerning research, public awareness, and the safer use of wireless technologies.

HESA Recommendation 9 addressed public education about wireless technology use, including in homes and schools.

CE4ST has requested information concerning the implementation of these recommendations.

We believe Canadians deserve accessible information about RF exposure, existing standards, scientific uncertainties, and practical options for reducing unnecessary exposure.

We recommend that the federal government publish an updated account of the measures taken in response to the 2015 HESA recommendations.

5.10. Scientific Independence and Public Confidence

Public confidence in RF exposure policy depends upon transparent scientific assessment.

CE4ST has expressed concerns about potential conflicts of interest, the composition of expert review panels, and the need to include a broad range of relevant scientific disciplines, with biological backgrounds (biophysics, bio-chemistry, etc.).

We recommend that future federal reviews disclose expert selection criteria, financial relationships, evaluation methods, and the reasoning behind conclusions.

Scientific disagreements should be addressed through transparent assessment of the evidence.

Government decisions should be informed by independent expertise and clearly distinguish established findings from unresolved questions.

Part 6 - Telecommunications Infrastructure, Schools, and Communities

6.1. Densification of Cellular Towers and Antennas

Telecommunications infrastructure has expanded considerably to meet growing demand for mobile connectivity.

This includes cellular towers, rooftop antennas, small-cell installations, and newer network technologies.

CE4ST is particularly concerned about infrastructure located on or near schools, daycares, playgrounds, residential neighbourhoods, and healthcare facilities.

Cell tower induced cancer clusters are real at levels deemed safe by regulatory organizations. At an elementary school in Ripon, California, there were causalities among 8 students, 4 teachers, and 100 (nearby) residents. One of those students, Mason Ferullis, had surgeries and treatments that resulted in brain necrosis, nerve pain and paralysis on the left side of his body, bone degradation in both shoulders, loss of hearing, loss of vision. His right eye had to be sutured shut. Mason's brain and spine cancers continue to return, year after year.

Schools, waterparks, and playgrounds deserve careful consideration because children and other individuals may spend substantial periods of time there.

Infrastructure planning should include meaningful community consultation, transparent technical information, and appropriate exposure assessment.

We recommend consideration of alternative sites and network designs when sensitive locations are involved.

Alternative information communication technology (ICT) services can provide adequate RF-reduced, wireless and wired services. Satellite service, cell booster amplification, and Wi-Fi calling are superior alternatives which consider the short term and long-term health of young children and medically vulnerable residents and reduce the Municipality's liability risks. Cell phones can communicate with satellite in an emergency. Cell boosters can amplify the signal to make phone calls. Wi-Fi calling let's users place and receive calls and send messages over a wireless internet connection as opposed to using a cellular signal. Most devices including smartphones and tablets have built-in voice over IP (VoIP) capabilities to transmit voice and multimedia content over Internet Protocol networks. This can provide a more consistent and reliable connection. These measures provide a strategic

approach to limiting cell tower proliferation, reducing community RF exposure, and minimizing wireless emissions within homes.

Minimizing the number of cell towers in communities and providing fiber optics to the premises will provide superior signals required for residents and achieve a number of health, wellness and accessibility goals for communities:

- Reduce potential injury, create accessibility, and reduce costly trial and error (remember asbestos?).
- Support the Precautionary Principle. There are more than 6,000 studies that indicate pervasive, less than 24/7 exposures to electromagnetic signals in the radiofrequency/microwave range can cause injury (leukemia, brain tumours, infertility, heart arrhythmia/failure, debilitating migraines, vertigo, etc.). Cardiologist, Dr. Sinatra claims these signals can cause heart failure in some children.
- Reduce health risks of the potential impacts of long term, cumulative exposure for students and staff.
- Likely avoid cluster cancers (500 meters may be even too close to children who are more vulnerable).
- By just doubling the distance from residents the signal strength will be reduced by 4 times! This is known as the “*square of the distance*”.
- Protect children and pregnant staff (unborn children) who are more sensitive to wireless signals because these cumulative 24/7 signals penetrate more deeply in their rapidly growing brains. According to Devra Davis Ph.D., signals can have a significant impact on the development of thinking and memory cells in the fetal brain (causing “Environmental Autism”, ADHD, etc.). Brain studies reveal that radiofrequency exposures can spike glucose levels in the brain leading to ADHD, addictive behaviour, or other hormone disruptions which amplify mental health issues¹. (Dr. Davis was one of the main scientists responsible for having lead removed from gasoline.)
- The American Academy of Pediatrics², the largest US medical association of pediatricians and pediatric specialists state, “*Children are disproportionately affected by environmental exposures, including cell phone radiation. The differences in bone density and the amount of fluid in a child’s brain compared to an adult’s brain could allow children to absorb greater quantities of RF (radiofrequency) energy deeper into their brains than adults.*”

¹ <https://ehtrust.org/?s=adhd>

² <https://ehtrust.org/wp-content/uploads/AAP-Recommendations-Fact-Sheet-3.pdf>

- Support Health Canada guidelines for young children; According to Health Canada *“Children are more sensitive to environmental agents”* (Health Canada, May 2019).
- Support the ALARA Principle (As Low As Reasonably Achievable); providing students and staff with the signals needed to operate devices efficiently, while minimizing signal strength. (Following the BioInitiative Report³ limits whenever possible.)
- Support children and staff who are more sensitive to cell tower signals (Electromagnetic Hypersensitivity – EHS) and or those who can experience amplified injury; residents living with Lyme disease, Autism, MS, Parkinson’s, diabetes, and other neurodegenerative diseases, or others who experienced over-exposure to chemical/electrical signals and cannot tolerate additional signals which trigger debilitating symptoms.
- Support children who are healing from cancer (there is evidence that radiofrequency radiation can act as a cancer promotor even if it is not the initiator).

Reducing the number of cell towers in communities, while providing superior signals from fiber optics to the premises will balance the needs for superior signals, while supporting the health of residents, especially children, pregnant women (developing fetuses), as well as people who are medically vulnerable (recovering from cancer, head injuries – concussions, immune deficiencies, neurodegenerative illnesses – Parkinsons, dementia, etc.) and those who have additional electrical or chemical workplace exposures (electrical workers – EMF exposures, fire fighters – chemical exposures).

Frank Clegg, CEO of Canadians for Safe Technology (C4ST), and retired President of Microsoft Canada summarizes concerns of wireless radiation exposures from antennas and towers. Small cell antennas will provide 3G, 4G, and 5G signals, all of which are biologically active and can cause adverse, biological effects.

<https://www.youtube.com/watch?v=h4TdY344Now>

Fiber Optics to the premises is superior. [Timothy Schoechle’s, \(PhD\) book, Reinventing Wires](#): the Future of Landlines and Networks published by The National Institute for Science, Law and Public Policy (NISLAPP) published, demonstrates this superior, energy efficient, sustainable, and consistent service.

³ <https://bioinitiative.org/conclusions/>

6.2. William Lyon Mackenzie Collegiate Institute: A School Community's Concerns

In November 2024, I wrote to Ontario's Minister of Education concerning reports from 18 staff members at William Lyon Mackenzie Collegiate Institute in Toronto.

In November 2023, 18 teachers at William Lyon Mackenzie Collegiate Institute initiated a formal work refusal over concerns about radiofrequency exposure from a nearby cellphone tower. Their union reported that repeated concerns and delays in the employer's response prompted the action. Teachers returned to work after the TDSB committed to addressing their concerns and arranged an independent review.

Our organization reviewed preliminary RF measurements supplied by Safe Guard Solutions and communicated concerns about the results of the exposure assessment and possible mitigation.

We also referenced correspondence from Dr. Riina Bray of the Environmental Health Clinic at Women's College Hospital.

CE4ST requested that the relevant school board, provincial ministries, telecommunications authorities, and other responsible parties investigate the concerns and consider appropriate responses.

6.3. Cell Tower Setbacks and Sensitive Locations

CE4ST has previously proposed precautionary separation distances between telecommunications installations and sensitive locations. We recommend installations be at least 1 km from schools and residential areas.

Antennas don't belong next to homes, or outside children's bedroom windows.

These proposals have drawn upon recommendations from researchers and environmental health organizations.

However, distance alone does not determine RF exposure. Exposure depends on transmitted power, antenna orientation, elevation, frequency, network design, surrounding structures, and other factors.

We recommend site-specific independent assessments (measurements) rather than relying exclusively on fixed-distance assumptions.

Municipalities should have meaningful opportunities to examine alternative locations and consider the circumstances of nearby schools, healthcare facilities, and residents.

6.4. ISED's Antenna-Siting Consultation Framework

In 2026, CE4ST submitted comments concerning Innovation, Science and Economic Development Canada's proposed changes to the antenna-siting process, including consultation DGSO-001-26.

Our submissions emphasized transparency, municipal involvement, public notification, accessibility, and meaningful participation.

We expressed concerns about shortened consultation periods, exemptions from notification, and automatic approval mechanisms that could reduce community input.

CE4ST recommended adequate municipal review periods, accessible notification procedures, and transparent disclosure of proposed infrastructure.

We also requested that public consultation records accurately reflect submissions from non-profit organizations, affected persons living with EHS and affected communities.

6.5. Independent RF Measurements and Public Disclosure

CE4ST recommends that telecommunications infrastructure assessments include reliable technical information and appropriate verification. Relevant information may include operating frequencies, transmitted power, antenna characteristics, predicted exposure levels, and measurements taken under typical operating conditions.

Where significant equipment or operational changes occur, updated assessments are appropriate.

We also recommend exploring publicly accessible RF monitoring programs to improve transparency and support independent research.

Part 7 - Accessible Communities and Practical RF-Reduced Solutions

Accessibility is not simply about entering a building. It is about being able to participate meaningfully in the life taking place inside it.

7.1. RF-Reduced Schools and Learning Environments

RF Assessment and Mitigation:

Schools/ Employers - hire building biologists to identify, measure, and reduce RF levels for everyone. As you know RF Meters can be used to measure peak and maximum levels.

Schools should measure peak signals which are the most biologically active and maximum levels over the full period. Signals must be measured while all devices are operating to assess typical real life exposure levels and to assess the effectiveness of accommodations implemented.

Ambient classroom levels should be as close to 10 $\mu\text{W}/\text{m}^2$, as possible, if there are electromagnetically sensitive students/teachers in the classroom.

Using an existing, superior wired system, will reduce RF exposures for all children, and reduce energy costs. All schools can apply the ALARA Principle to provide “As low as reasonably achievable” signal levels, with maximum efficiency. Wi-Fi on demand provides signals when required and a portable access point on a cart can create additional signals, when needed. A power over ethernet (POE) switch can be connected to a POE access point.

Hartsbrook and Lindbrook Schools (Ontario) reduced power density by 25% “without a noticeable impact on device performance”.

Reducing signals by 25% may prevent additional student/staff injuries, but it does not protect persons with EHS disabilities.

Turning off one access point and wireless signals on devices, and simply wiring devices, is required. Wired devices provide superior connections, protection, accessibility, data privacy, and are healthier for everyone. Multiple laptops can be connected using one existing wired connection and an ethernet switch.

In high school ideally; schools could equip selected classrooms with wired network connections and centrally managed wireless access points. Through managed Power over Ethernet (PoE) switches or wireless network controllers, authorized IT personnel could disable designated access points according to classroom schedules while maintaining wired internet access. Access to an RF meter can ensure RF signals are appropriate for the individual.

A Healthy Learning Environment: Prioritizes wired internet connections. Teachers along with students keep wireless devices in airplane mode, with Wi-Fi and Bluetooth turned off when not needed. When wireless connectivity is required for a specific instructional activity, for example, using tablets, temporary access through a mobile cart equipped with a wireless access point can be used. Wireless connectivity should only be activated only

for the duration of the activity, then switch off the access point and disable the devices' wireless functions before returning the cart to a central storage area.

Health Curriculum: Integrating Safe Technology Practices which Promote Health, Safety, Responsibility, and Accessibility

A Safe Technology Practices health program could focus on helping students make informed choices about technology that support physical health, mental well-being, healthy relationships, personal safety, and inclusion.

Individualized Accessibility for Electrosensitive students and teachers: Schools should provide accessible options for students and staff who require modifications to their learning or working environments.

Airplane mode signage, turning off one access point (on/off switch), wiring a couple of devices and instructing students to use safe tech practices can begin to (accommodate) meet the needs of a disabled student or teacher.

In high school ideally; schools could equip selected classrooms with wired network connections and centrally managed wireless access points. Through managed Power over Ethernet (PoE) switches or wireless network controllers, authorized IT personnel could disable designated access points according to classroom schedules while maintaining wired internet access. Access to an RF meter can ensure RF signals are appropriate for the individual.

RF-Reduced and wired technology: Practical measures include teaching safe tech practices to students and teachers (airplane mode, or specific antennas turned off when not in use), wired internet connections, Ethernet adapters, offline educational resources, and disabling unnecessary wireless functions.

School boards can also review wireless access-point placement, equipment configuration, and individualized accommodation requests.

These measures can preserve the benefits of digital education while offering greater flexibility.

Such accommodations would offer practical options for reducing reliance on wireless connectivity while supporting equitable access to education, curriculum participation, and school activities for students requiring reduced-RF environments.

7.2. Accessible Homes and Housing Stability

Accessibility planning should recognize that meaningful community participation extends beyond employment, education, and healthcare.

Housing presents particular challenges for individuals who seek RF-reduced environments.

People living with EHS may be able to replace wireless routers with wired connections, use wired telephones, and reduce wireless transmissions inside their homes. However, they may have limited control over nearby cellular installations or wireless equipment on neighbouring properties.

CE4ST has heard accounts of EHS persons in effect-evicted from their homes, and needing to relocating repeatedly, becoming separated from family members, or struggling to find a suitable accommodation. This housing crisis may become particularly severe during the colder seasons, late fall, early spring, and winter when these environmentally disabled persons may face significant hardship finding safe, warm and accessible places to live.

From an accessibility perspective, Canadians living with electromagnetic disabilities encounter barriers comparable to those faced by individuals with other environmental sensitivities. Unlike other environmental accessibility accommodations, there are currently few housing policies, accommodation standards, planning frameworks, or programs that recognize their needs and address RF exposure within shelters or shared housing environments. There are no widely adopted public policies encouraging the creation of RF-reduced areas, wired connectivity options to reduce unnecessary wireless emissions to accommodate people with electromagnetic disabilities.

These gaps in housing policies and standards have created insurmountable hurdles for those living with Electromagnetic Disabilities, who are desperately seeking accessible housing.

The expansion of wireless infrastructure, including cell towers installations can significantly limit housing options. Persons living with electromagnetic disabilities may be forced to relocated repeatedly, disrupting their ability to establish long-term housing stability, maintain employment, access to healthcare (limited RF-reduced hospitals/medical clinics), build lasting community connections, and participate fully in local life.

recommendations:

1. Recognize electromagnetic disability-related housing needs within accessibility and housing policies.
2. Support the development and preservation of low-electromagnetic-exposure housing options, particularly for individuals with documented medical needs.

3. Require consideration of electromagnetic accessibility in publicly funded housing projects, including options for wired internet access and the ability to disable unnecessary wireless technologies within designated units.
4. Develop accommodation guidelines for housing providers, property managers, and social housing agencies to assist them in responding appropriately to accommodation requests.
5. Encourage the use of fibre-optic and wired communications infrastructure as accessible alternatives that can provide connectivity without requiring wireless transmissions within living spaces.
6. Ensure that medically vulnerable individuals are not excluded from housing opportunities because of their disability-related environmental requirements.

The availability of RF-reduced and scent-free housing options is critical to removing significant barriers and will ensure access to safe and accessible housing for medically vulnerable individuals living with environmentally induced disabilities. Such accommodations support health, dignity, inclusion, and meaningful participation in community life.

Homeless shelters filled with wireless signals are not accessible: For individuals living with electromagnetic disabilities, access to emergency shelters, and temporary housing can be extremely challenging. (e.g., a teacher we worked with was unable to find an RF-reduced workplace/apartment/temporary emergency shelter). Most homeless shelters, transitional housing facilities, and emergency accommodations rely heavily on wireless technologies, including Wi-Fi networks, cellular devices, smart building systems, wireless security systems, and other RF-emitting technologies. As a result, these environments may become inaccessible for their needs.

We recommend that housing and accessibility strategies explore wired connectivity, RF-reduced residential options, and consideration of strategically placed telecommunications infrastructure, at least 1-2 km from persons living with EHS. A voluntary, confidential municipal registry could help identify the accommodation needs of residents living with EHS/EMR-S and inform consultation on proposed cell tower locations. With residents' explicit consent, this information could support consideration of alternative sites and measures to reduce RF exposure near their homes. Participation would need to be optional, with strict privacy protections and no public disclosure of residents' identities, addresses, or medical information.

7.3. Inclusive Workplaces and Employment Opportunities

Employers should consider practical accommodation options for employees experiencing electromagnetic sensitivities.

These may include wired workstations, alternative communication systems, designated lower-RF spaces, and wired equipment.

Individual accommodation plans should be developed collaboratively and assessed for effectiveness.

The objective is to preserve meaningful employment, professional dignity, and equitable participation.

7.4. A Model of Compassionate Healthcare Accessibility: My Experience at Royal Victoria Hospital

My experience at Royal Victoria Hospital demonstrated how thoughtful planning, compassionate leadership, and coordinated efforts among healthcare professionals can successfully accommodate a patient with electromagnetic hypersensitivity (EHS), enabling access to essential medical services with dignity and greater comfort.

To minimize my exposure to radiofrequency electromagnetic radiation (RF-EMR) in busy public areas, arrangements were made for me to receive my patient identification wristband directly from the Patient Representative Office. This accommodation allowed me to bypass the crowded registration area, where numerous patients and visitors were using wireless devices.

Hospital staff then escorted me through quieter, lower-level hallways, enabling me to avoid the busy main elevators. I experience particularly debilitating symptoms in enclosed elevators when passengers are using cell phones. The confined metal environment and close proximity to transmitting devices make these spaces especially challenging for me.

The Reception Manager personally introduced me to the Fracture Clinic Manager, who explained that patients had been provided with an informational fact sheet encouraging them to place their cell phones and other wireless devices in **airplane mode** while attending the clinic. An accompanying poster reinforced this request, helping to promote awareness, cooperation, and consideration for patients with electromagnetic sensitivities.

I was also informed that my surgeon would advise me whether he had left his cell phone at reception or turned it off completely before meeting with me in the designated EMF-protected area. This thoughtful communication provided reassurance that my

accommodation needs were being recognized and respected throughout my medical appointment.

What made this experience exceptional was the seamless coordination among hospital staff, managers, and medical professionals. Each person understood their role, communicated effectively, and contributed to creating a more accessible healthcare environment. Rather than placing the responsibility entirely on me to repeatedly explain my disability or negotiate accommodations, the hospital proactively implemented practical measures that reduced the barriers I encountered.

These accommodations did not require the hospital to discontinue essential wireless services or undertake extensive infrastructure changes. They involved considerate adjustments to registration procedures, patient movement, wireless device practices, staff communication, and the location of medical care.

For me, these measures made a profound difference. I was able to access essential healthcare with greater comfort, dignity, and confidence, knowing that my medical needs were being taken seriously.

Royal Victoria Hospital demonstrated that meaningful accessibility is achievable when healthcare institutions combine compassionate care, effective communication, and practical environmental accommodations. This experience offers a valuable model for other hospitals, medical clinics, and essential service providers seeking to create more inclusive environments for patients with electromagnetic sensitivities.

Most importantly, it demonstrated that **no patient should have to choose between accessing essential medical care and managing a disabling medical condition when reasonable accommodations can help remove barriers to care.**

Healthcare facilities can examine the feasibility of lower-RF examination rooms, wired administrative systems, alternative registration procedures, and patient communication protocols.

Staff training and clear accessibility procedures can reduce the burden on patients who otherwise must repeatedly explain their circumstances.

My experience at Women's College Hospital demonstrates how coordinated planning and compassionate care can improve accessibility.

7.5. Public Buildings and Essential Services

Libraries, community centres, government offices, and other public facilities can consider environmental disability signage, wired public-access terminals, accessible service counters, and designated spaces with reduced wireless transmissions.

Essential services should remain accessible without requiring every individual to use a wireless smartphone. These options can support broader digital inclusion and accessibility.

7.6. Transportation, Travel, and Community Participation

Transportation and travel are important components of independent living.

For individuals who experience symptoms in wireless environments, airports, public transit, hotels, and other facilities can present significant challenges.

Where operationally feasible, service providers can consider alternative communication methods, lower-RF waiting areas, and individualized assistance.

Part 8 - Environmental Protection and Sustainable Connectivity

8.1. RF-EMR and the Canadian Environmental Protection Act

CE4ST has submitted recommendations concerning RF-EMR and Canada's environmental protection framework.

Research has investigated electromagnetic field exposure in relation to plants, insects, pollinators, birds, and other organisms.

Findings vary considerably by species, exposure conditions, and biological outcome.

We recommend independent ecological research, including appropriate exposure measurements, replication, and consideration of other environmental stressors.

8.2. Biodiversity, Pollinators, and Ecosystem Health

Healthy ecosystems depend upon complex interactions among living organisms and their physical environments.

The expansion of telecommunications infrastructure creates an opportunity to investigate potential ecological effects under realistic environmental conditions.

CE4ST recommends that environmental assessments consider credible evidence concerning RF exposure alongside other pressures such as habitat loss, pesticides, pollution, and climate change.

8.3. Fibre Optic Infrastructure as Canada's Digital Foundation

CE4ST supports prioritizing fibre optic networks as a foundation for reliable and inclusive digital connectivity.

Fibre optic cables transmit information using light within an enclosed medium and do not require RF transmission along the fibre itself.

When combined with Ethernet connections inside buildings, fibre networks can provide high-capacity communication while offering reduced-RF options.

Wireless networks remain useful for mobile connectivity and situations where fixed connections are impractical.

However, wired alternatives should remain available.

We recommend that publicly funded schools, hospitals, government buildings, and major infrastructure projects preserve practical wired connectivity options.

8.4. Energy Efficiency, Privacy, and Environmental Sustainability

Digital infrastructure planning should consider energy consumption, equipment lifecycles, maintenance costs, reliability, and privacy.

Wired and wireless systems have different technical characteristics, and their relative energy efficiency depends upon network architecture, equipment, and utilization.

We recommend transparent lifecycle assessments and infrastructure planning that supports accessibility, affordability, security, and environmental sustainability.

Part 9 - Human Rights, Government Accountability, and Public Policy

9.1. Electromagnetic Sensitivity and Disability Accommodation

People experiencing electromagnetic hypersensitivity may report substantial limitations in their ability to participate in everyday activities.

The World Health Organization has acknowledged that the symptoms attributed to EHS can be disabling while also stating that scientific evidence has not established a causal relationship with electromagnetic field exposure.

Over the last 16 years, exposure to digitally pulsed radiofrequency radiation triggers a biological response in my body; sharp, electric shock like “zaps,” which mimic the zaps in a nerve test, followed by delayed symptoms, including progressively increasing pressure in the frontal region of my head and a migraine that lasts at least 8 hours the next day (EMF hangover).

Canada's accessibility and human rights frameworks emphasize dignity, individual circumstances, and the removal of barriers.

Scientific uncertainty about causation should not prevent institutions from assessing documented functional limitations and reasonable accommodation requests.

We recommend practical guidance for schools, employers, healthcare providers, housing authorities, and public institutions.

9.2. Occupational Health and Safety

Employees should be able to report environmental health concerns without stigma or retaliation.

Employers should respond through established occupational health and safety procedures, appropriate assessments, consultation with qualified professionals, and consideration of individual medical needs.

Where feasible, environmental sensitivity signage, wired communication equipment and modifications to wireless infrastructure should be considered as accommodation options.

9.3. Meaningful Public Participation

Non-profit organizations can contribute valuable perspectives to public consultations regarding accessibility and accommodations.

They represent communities, provide expertise, and amplify the voices of people who may otherwise struggle to participate.

CE4ST recommends complete public consultation records, accessible participation methods, adequate review periods, and transparent explanations of regulatory decisions.

9.4. Public Education and Responsible Technology Use

Public Health departments should provide people clear information about RF radiation, existing exposure standards and practical exposure-reduction options.

Public education should be accurate, and accessible.

Inclusive public health campaigns could encourage people to switch off cellular, Wi-Fi, and Bluetooth connections when not needed, move away from others when using wireless devices, and use designated cellphone areas to support accessibility for people with electromagnetic sensitivities.

Just as physical accessibility enables people with mobility disabilities to enter and navigate buildings, RF-reduced spaces and wired alternatives can provide an essential pathway to accessibility, independence, dignity, and equal participation for individuals with electromagnetic sensitivities.

I am deeply concerned about the apparent lack of independent health science assessment, research, and data collection concerning the health effects of wireless exposures, particularly on children. The current safety standards for RF radiation exposure appear to be based on outdated models that do not account for the latest scientific findings regarding low-level, chronic exposure. There is an urgent need for comprehensive, independent research to assess the potential risks and to inform any necessary revisions to existing safety guidelines. Clear, accessible public health notices that outline safe technology practices, particularly for children. These should include recommendations for reducing wireless exposure in both home and school environments.

Our children deserve to grow up in an environment that prioritizes their health and safety. By taking proactive measures to address the potential risks of wireless exposure, public health departments can play a vital role in ensuring that technology is used in a way that is both beneficial and safe for future generations.

9.5. Strengthening Accessibility and Accommodation in Schools and Workplaces

In schools, responsible technology practices can form part of digital citizenship and well-being education.

School boards and employers have an important opportunity to strengthen accessibility and inclusion by recognizing that compliance with radiofrequency exposure guidelines, such as Canada's Safety Code 6 (SC6) and the U.S. Federal Communications Commission (FCC) limits, does not necessarily resolve an individual's disability-related accommodation needs.

School Boards in the United States and Canada, are not legally bound to follow Federal Communications Commission, Innovation, Science and Economic Development (ISED), or Health Canada's Safety Code 6 guidelines. This means school boards have the authority and responsibility to go beyond federal minimums by adopting protective guidelines, investing in safer infrastructure (such as wired internet connections), and establishing procedures that minimize unnecessary radiofrequency (RF) radiation exposure (in the microwave frequency range).

These guidelines are commonly relied upon as benchmarks for RF exposure, and institutions may interpret compliance as sufficient assurance that no additional measures are required. However, **meeting general exposure limits and fulfilling the duty to accommodate an individual with a documented disability are two distinct responsibilities.**

This distinction is particularly important when an employee provides medical documentation from a qualified specialist, including the Director of the Environmental Health Clinic at Women's College Hospital, identifying functional limitations and the need for reduced exposure to wireless technologies.

Rather than treating compliance with existing RF guidelines as a reason to dismiss accommodation requests, school boards and employers can take a constructive, individualized approach by engaging with the affected person, reviewing medical recommendations, and exploring practical solutions.

Reasonable accommodations may include access to designated RF-reduced environments where feasible: wired internet connections, reduced-wireless workspaces or classrooms, turn off wireless antennas and plug in adaptors for technology equipment.

By recognizing that regulatory compliance does not replace individualized accessibility assessments, school boards and employers can demonstrate leadership in disability inclusion, respect medical documentation, and help ensure that individuals are not unnecessarily excluded from education, employment, and essential services.

Part 10 - Recommendations to the Government of the United States and Canada

10.1. Priority Recommendations

Drawing upon my personal experiences, professional background, and consultations with experts and affected families, I respectfully recommend that the Government to:

1. Commission an independent, multidisciplinary scientific review of RF-EMR research, including biological effects, long-term exposure, vulnerable populations, and emerging technologies.
2. Review the scientific basis and implementation of FCC and Safety Code 6 guidelines with current, peer-reviewed, independent science (primarily biological effects).
3. Develop national guidance for wired technology options and individualized accommodations in schools: public campaigns, and accessibility laws to close the gap and support persons living with electromagnetic, environmentally induced disabilities.
4. Preserve meaningful municipal consultation, public notification, and transparent decision-making for telecommunications infrastructure.
5. Require enhanced consideration of schools, daycares, playgrounds, healthcare facilities, and residential areas in wired (fiber optics to the premises, FTTP) infrastructure planning.
6. Establish appropriate mechanisms for independent RF exposure verification and public disclosure.
7. Develop practical disability accommodation guidance for individuals experiencing electromagnetic sensitivities.
8. Investigate RF-reduced housing options and wired connectivity as part of accessibility planning.
9. Prioritize fibre optic infrastructure and preserve wired alternatives in publicly funded buildings and major projects.
10. Support independent environmental research concerning potential RF effects on wildlife and ecosystems.

11. Ensure government consultation processes and scientific assessments remain transparent, inclusive, and accountable.

10.2. Conclusion: No One Should Be Left Behind, Government Health Guidelines and Accessibility Policies Must Address the Needs of Electromagnetically Persons

I spent 29 years teaching children that every person matters. I encouraged my students to be compassionate, responsible, curious, and respectful of others. I taught them that differences should be understood and that challenges can often be overcome through creativity, cooperation, and determination.

Today, I am asking our government and regulatory organizations to demonstrate those same values. The United States and Canada do not have to choose between technological advancement and accessibility.

No-one should have to choose between managing debilitating symptoms and participating in everyday life.

A person should not have to establish the complete biological mechanism of an illness before being treated with compassion, dignity, and respect.

I believe the true measure of technological progress is not simply how connected our society becomes, but whether every person has a meaningful opportunity to participate.

Government health guidelines and accessibility policies should provide a clear pathway toward dignity, inclusion, independence, and meaningful participation for electromagnetically sensitive individuals.

I know what it is like to love your career but struggle to remain in your workplace. I know what it is like to lose access to ordinary public spaces, to plan daily activities around physical symptoms, and to encounter skepticism when asking for help.

I also know the profound difference that compassionate and thoughtful accommodations can make. I have experienced both exclusion and inclusion.

Through Canadian Educators for Safe Technology (CE4ST), I have witnessed the determination of parents seeking help for their children, educators trying to remain in the profession they love, and individuals searching for accessible homes and essential services.

I believe their experiences deserve to be heard.

Currently, invisible regulatory barriers created by the FCC and SC6 appear to upstage accessibility policies. The FCC and Health Canada claims SC6 exposure levels are safe for vulnerable persons. School Boards and Employers use FCC and SC6 recommendations as a health guide and feel they have “official permission” to dismiss accessibility guidelines even when a medical note is provided from the Director of the Environmental Clinic at Women’s College Hospital.

Government health guidelines must include clear recommendations, policies, and practical accommodations that address the needs of people living with EHS/EMR-S and break the cycle of suffering, exclusion, and barriers to participation.

Government guidelines dismissing the legitimacy of EHS/EMR-s has led to unfair treatment of persons with EHS. For decades, they have been stigmatized, discriminated, and segregated. Until EHS/EMR-S is explicitly addressed in accessibility standards and consistently recognized across all levels of government, persons living with this environmental sensitivity may continue to face significant barriers to obtaining timely and appropriate accommodations. Although some EHS disabled persons have been accommodated in the workplace, this accommodation can sometimes depend on the employer.

Without clear, consistent guidance, access to accommodations can vary considerably between employers and institutions, leaving individuals dependent on the understanding, willingness, and discretion of individual decisionmakers rather than a predictable, equitable, and inclusive accommodation process.

We can support innovation while investigating scientific uncertainties. We can provide public services while recognizing that individuals have different environmental and accessibility needs.

As Physicians for Safe Technology promote:

[We can build reliable digital networks while preserving wired alternatives.](#)

My hope is that the United States and Canada will become leaders in developing inclusive digital infrastructures, compassionate accessibility practices, and evidence-informed public health policies.

No child should be unnecessarily excluded from learning. No employee should be unnecessarily excluded from meaningful work. No patient should be unnecessarily excluded from healthcare. And no American or Canadian should be left without reasonable opportunities to access housing, essential services, and community life.

**Let us build a digital future in which innovation and human dignity advance together-
and so no one is left behind.**

Respectfully submitted,

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Founding Director

Canadian Educators for Safe Technology (CE4ST)

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EFFECTS OF RADIOFREQUENCY ELECTROMAGNETIC FIELD EXPOSURE ON CANCER IN LABORATORY ANIMAL STUDIES, A SYSTEMATIC REVIEW

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