

DIRTY ELECTRICITY AND THE LINK TO CANCER

Scientific and medical evidence is growing that electromagnetic fields as well as "transients" from electrical wiring and appliances are responsible for causing a rise in cancer rates and also cancer clusters in workplaces and schools.

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The Health Hazards of EMFs

History has shown that the western world with its vested interests is slow to inform citizens about toxic agents and help protect them. The "dirty electricity" pandemic is no stranger to inaction, as were the asbestos, lead, acid rain, DDT, PCB and tobacco-smoking public health issues before it. The contention that artificially created electromagnetic fields (EMFs) which emanate from electricity generation can cause cancer has medical and legal experts commenting that EMFs will dwarf the tobacco-smoking issue and the asbestos crisis combined.

This health issue has a history replete with destroyed careers and tarnished reputations involving scientists who have sought to help the people, and with so-called experts who have colluded with the forces going against the precautionary principle of public health: first, *do no harm*.

In his assessment for the journal of the Royal Institute of Public Health in the UK, Dr Stephen J. Genuis reported that vested interests have been effective in delaying restrictive EMF legislation. He also noted that claims of environmental harm have been challenged by researchers who fail to disclose covert ties to industry, that economic interests exert undue influence on medical journals, and that some editors and journal staff have suppressed publication of scientific results that are adverse to the interests of industry.¹

Professor Mark Ellwood, who was installed by the Australian federal government in the most elevated position in the nation as Director of the National Cancer Control Initiative to provide advice and make recommendations to the government and other key groups regarding cancer control, submitted expert witness reports for the power companies (and telecommunications companies) for court cases. Professor Andrew Wood, installed by the federal government in another position that serves to protect us—ARPANSA, the Australian Radiation Protection and Nuclear Safety Administration—also submits expert witness reports for the power industry for court cases. Professor Wood is currently chair of the ELF (extremely low frequency) Standard Working Group for the ARPANSA Radiation Health Committee.

It was not until 1979 that the western world took notice that these silent, invisible EMFs may be hazardous. Epidemiologist Dr Nancy Wertheimer and electrical engineer Ed Leeper conducted a study in Denver, Colorado, USA, and reported that children who were twice or three times as likely to have leukaemia tended to live in homes close to power lines and transformers. Their results, published in a scientific paper, showed an increased incidence of leukaemia, lymphomas and nervous system tumours in children.²

Their hotly debated research had an immediate effect: in response to public opposition to the construction of new high-voltage power lines, the electricity industry convened an expert panel of eminent and conservative medical scientists.

Included in this panel was Professor David Carpenter, from the Department of Public Health at New York University, and Dr David Savitz, one of America's most respected epidemiologists. Professor Carpenter's original scepticism was overturned when the Wertheimer and Leeper study, originally heavily criticised as flawed, was extended and improved. It confirmed a significantly increased risk of leukaemia.³ The reason why childhood leukaemia is studied is because the strongest evidence for a cancer is that the same cancer is significantly elevated in children.

In 2001, leading occupational medical epidemiologist Dr Sam Milham, MPH, and E. M. Ossiander, of the Washington State Department of Health, Olympia, researched the rise of electrification in the UK and USA and concluded that the childhood leukaemia peak of common acute lymphoblastic leukaemia was attributable to residential electrification: 75 per cent of all childhood acute lymphoblastic leukaemia and 60 per cent of all childhood leukaemia could be preventable.⁴ In 2007, Professor Michael Kundi reported that up to 80 per cent of all cases of childhood leukaemia may be caused by exposure to these fields.⁵

It was reported as early as the 1960s (Court-Brown and Doll) that a new leukaemia-causing agent entered the UK and USA in the 1920s–1930s.⁶ Today it is quite widely accepted that these EMFs can cause childhood leukaemia.

There is some evidence that other childhood cancers may be related to EMF exposure, but not enough studies have been done.⁷

Wertheimer and Leeper were the first to see a magnetic field–breast cancer connection in their 1982 study of residential magnetic field exposures of adults.⁸ Even though this study looked at overall cancer risk in adults and found an increase in excess cancers of the nervous system, uterus and lymphoid tumours, "they discovered a nearly threefold increase among women younger than 55 who lived near power lines, indicating that magnetic field exposure had accelerated development and growth of breast cancer".⁹

Breast tissue (along with foetal tissue) is the most sensitive tissue in the body and also the most sensitive to artificial (man-made) radiation, which is why any study into breast cancer has significant

ramifications for all of us.

Breast cancer is a very-high-risk disease for women today. The contention that EMFs are a risk factor, let alone a *causative* factor, in female breast cancer has been heavily resisted. When individual cases of breast cancer or breast cancer clusters in women occur, various reproductive factors are also taken into account which can mask the role that EMFs play.

When, in 2001, three men in one small office developed breast cancer, Dr Sam Milham testified for the men in their 2003 court case, arguing that their cancers were caused, in part at least, by EMFs emanating from an electrical vault next to a basement office where the men worked.¹⁰ In 1997, Dr Thomas Erren, MPH, had noted that an association between ELF EMFs and breast cancer is supported in men.¹¹

In 2002, even the Washington, DC, legal counsel for electricity utilities worldwide conceded in a privileged attorney–client communication that the stance of the power industry had to change.¹² Studies are normally conducted on exposed and unexposed subjects, but with these EMFs we are all exposed, making a definitive cause hard to prove.

Also, it would be unethical to expose people to high measurements of these EMFs to prove the case. People don't welcome having to change convenient lifestyles, and, when doubt and confusion are introduced, the public is often quick to disregard the importance of data that makes changing ingrained habits a requirement.

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There have been thousands of studies of EMFs, more so than with any other health issue. In 1997, Dr Erren commented that there are more epidemiological studies that link cancer to these fields than to environmental tobacco smoke.¹³ We are all concerned about the infiltration of chemicals into our wider and more personal environments, yet an analysis of 65 studies reported that the combined effects of toxic agents together with EMFs enhance the damage as compared to the toxic exposure alone.¹⁴

In 2007, the World Health Organization (WHO) stated that it is "reasonable and warranted" to lessen exposure to these ELF EMFs, "[p]rovided that the health, social and economic benefits of electric power are not compromised"¹⁵—information that will take decades to be acted upon around the globe.

EMFs and Cancer Clusters

Fifty-three people in a small post office in Capalaba, Brisbane, Australia, with an old electricity substation next door, were diagnosed with serious and fatal diseases by 2000, although staff had started to take notice of the disease patterns in the early 1990s. Investigation of the electrical environment was incomplete, and there is still no resolution to this situation today.

When research is conducted into these disease clusters, often it's the case that measurements are taken after hours when the electrical environment has changed or that investigations are conducted after extensive remedial electrical work has been completed. Often the cancers are put down to "random chance" or "coincidence".

However, in the case of the breast cancer cluster involving 17 women working in a small area within the Australian Broadcasting Corporation (ABC) TV studios in Toowong, Brisbane, the cancers, which were diagnosed between 1995 and 2006, were thought to be workplace-related but no cause could be found. In early 2005, the women pinpointed the area which they thought was in question.

A private firm, EMC Technologies, took radio-frequency electromagnetic radiation measurements in April 2005 and concluded that all the work areas surveyed complied with the ARPANSA RPS3 standard,¹⁶ but it wasn't until 18 December 2006 that ARPANSA investigated the premises for ELF EMFs. Within three days, the ABC staff were no longer working on the premises.

The specific measurements of ELF EMFs in the area pinpointed by the staff were not mentioned in the ARPANSA report.¹⁷ Complete and precise measurements of ELF EMFs as well as transient EMFs should have been taken in the area.

Professor Bruce Armstrong led the ABC's own investigation into the cancer cluster in 2006, looking at other breast cancer risk factors such as reproductive, lifestyle and age factors.

When questioned on national television in August 2007 on this breast cancer cluster and the frustration of some of the women who felt that the proper investigations were not carried out before all the equipment was taken out, he stated: "It is very important to do the investigations properly, and indeed we did have a problem with the ABC with the fairly quick decision to remove people from the site.

It did mean that some of the measurements we wanted to do were not complete, and I do understand how the women feel in that respect; they don't feel that it's been done satisfactorily..."¹⁸

This breast cancer cluster came close to showing the world that EMFs can cause breast cancer. Even though further analysis was not conducted on male staff in this workplace, the possibility does exist that prostate and/or testicular cancers may have been present or may develop in the future.

If complete measurements of all aspects of the electrical environment had been taken, this could have been a win-win situation for all citizens of the world: the women could have known what caused their breast cancer and (along with every other woman and man) would have been able to ensure that

their next working environment was safe; ABC TV would have been the perfect medium to spread the much-awaited information across the globe; and the ABC itself would have been commended on its groundbreaking achievement in helping millions of people (and scientists) throughout the world understand EMFs more fully. It also could have enabled the process of workplace reform to be instigated.

These cancer clusters serve to show us what is happening silently on a daily basis in everyone's lives. The adults and children of today have already been affected by these EMFs. Miscarriage, stillbirth, pre-term delivery, altered gender ratio and congenital abnormalities have been linked to maternal exposure.¹⁹

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Testicular abnormalities, atypical sperm, chromosomal aberrations and offspring congenital defects have all been linked to paternal exposure.²⁰ Fathers employed in industries with higher than average EMF exposure have also been noted to have offspring with higher rates of brain and spinal cord tumours.²¹

The Perils of Dirty Electricity

Any harmful EMFs can be classed as "dirty"—to put into common idiom the scientific and technical language that accompanies this public health issue—yet there is another facet of electricity, termed "dirty electricity", that is now seen as even more of a threat to our health than the electromagnetic fields mentioned above. It is not only the fields from power lines and substations that can be a concern; dirty electricity is running through virtually every building on the planet. An even more prevalent and insidious agent, this secretive and subtle underlying menace is in all probability one cause of the dramatic increase in many illnesses and cancers.

Dr Sam Milham stated in 2008: "Very recently, new research is suggesting that nearly all the human plagues which emerged in the twentieth century, like common acute lymphoblastic leukemia in children, female breast cancer, malignant melanoma and asthma, can be tied to some facet of our use of electricity.

There is an urgent need for governments and individuals to take steps to minimize community and personal EMF exposures."²²

In 1994, the B Armstrong *et al.* study relating to dirty electricity was published.²³ However, it was not until 2005, when Dr Sam Milham and electrical engineer Lloyd Morgan came out of retirement due to their concern over a cancer cluster, that information worthy of creating a paradigm shift finally began to emerge, with the results having serious implications for all of us.

(These brave researchers had honourable intentions and impressive credentials.²⁴ Dr Sam Milham in 1982 was the first to link workers exposed to EMFs with higher rates of leukaemia. Lloyd Morgan, a brain tumour survivor and a director of the Central Brain Tumor Registry of the United States (CBTRUS), introduced the Benign Brain Tumor Registries Amendment Act into US Congress that became law in 2002. Along with breast cancer, leukaemia and diseases of the central nervous system, brain tumours are among the diseases that are more prominent in this health issue.)

The researchers were responding to alarm over a cluster of 18 cancers reported in 2003 among the 137

teachers at a middle school in California. Even though the school district administration had refused a number of requests for these men to assist in the evaluation of this cluster, which involved nearly three times more cancers than the average, one teacher invited these researchers to visit the school after hours to take measurements of the electrical environment, which they did at their own expense. When the researchers reported their findings to the Superintendent of Schools, Dr Milham was threatened with prosecution for "unlawful...trespass" and the teacher who had invited them into the school received a letter of reprimand. The teachers then filed a California OSHA (Occupational Safety Health Administration) complaint, which ultimately led to the progressive California Department of Health Services (CDHS) becoming involved. The CDHS measured the different facets of the electrical environment and provided Milham and Morgan with the

data, which showed that dirty electricity—"transients", which are radio-frequencies riding along electrical wiring—was involved. Finally, this was a study that was conducted with the highest integrity, able to break through the red tape and politics that usually accompany the problem of harmful electrical environments. Of immense importance, Milham and Morgan commented that transients may be a universal carcinogen similar to ionising

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radiation,²⁵ an already established cause of cancer.

The only two published studies relating to dirty electricity—Armstrong *et al.* 1994 study and the Milham–Morgan study—both show very positive increases in cancer risk with increasing *cumulative* exposure to transients.

What is of critical importance is that the cancer risks at the school in California were comparable to the smoking–lung cancer risk. Of no surprise, breast cancer cases were reported in this cluster along with several other cancers including colon cancers, uterine cancers and malignant melanomas. Artificially created EM radiation (EMR) is a determinant in the development of malignant melanoma, an increasingly prevalent cancer that was uncommon until around 50 years ago.²⁶

In fact, research on EMFs has been conducted for over 50 years in Russia,²⁷ and the newer research on dirty electricity has been carried out by Russian experts in conjunction with scientists and electrical engineers from the United States, Canada, Kazakhstan and the Ukraine.²⁸ Kazakhstan has already swiftly mandated protection against dirty electricity in industrial situations,²⁹ a model which should be implemented in all countries across the globe.

Ongoing Risk Assessment

We are in the midst of an invisible and silent plague of pandemic proportions that has been woven into our everyday lives. Dirty electricity is in virtually every building, whether it be our homes, schools, workplaces or hospitals. Energy-efficient appliances and equipment are amongst the culprits that create dirty electricity. Dr Magda Havas, Associate Professor of Environmental and Resource Studies at Trent University, Canada, reports that many houses with solar panels have very high levels of dirty electricity.³⁰ Wind turbines can also generate dirty electricity, which is then transferred along the grid.

If these EMFs released a visible substance on us, we would comprehend very quickly the attack on our body and that dirty electricity is creating havoc with our immune systems. Even though we cannot see it and most of us cannot feel it, dirty electricity is affecting all of us. Removing dirty electricity has seen cases of multiple sclerosis improve dramatically and even go into remission, and has also resulted in asthmatics using inhalers less often.³¹

Some diabetics are discovering that their insulin levels are being artificially raised in dirty electrical environments. In 2004, Dave Stetzer, president of Stetzer Electric, and Dr Havas presented to the WHO their research showing the difference between the blood sugar level in a dirty electrical environment (a measurement of 36) and one that was filtered (a measurement of nine).³²

Autism is now seen as the fastest-growing developmental disability. Dr Havas reported that a recent pilot research study has shown higher rates of babies born with autism where the mothers' sleeping locations had high levels of radio-frequency EMR.³³

Children who have leukaemia or are in recovery have poorer survival rates if exposure to extremely low frequency EMF levels is high.³⁴ It follows that all ill and recovering patients should be aware of their exposure to these fields.

Lichtenstein *et al.* concluded from their study of identical twins that environmental factors are the initiating event in the majority of cancers.³⁵ On studying cancer trends in the 20th century, Hallberg and Johansson reported that there is a common environmental stress that accelerates several forms of cancer—colon cancer, lung cancer, breast cancer,

bladder cancer and melanoma.³⁶ From when electricity was first generated to the introduction of AM radio (1920s), radar (1940s), FM radio and TV (1950s), computers (1970s), mobile phones (1980s), and wireless technologies and compact fluorescent lighting (2000s), artificially created EMR is the most likely environmental stress.

Artificially created EMR may also be the underlying menace in the tobacco smoking and asbestos crises. Hallberg and Johansson reported that exposure to radiowaves (artificially created EMR) appears to be *as big a factor in causing lung cancer as cigarette smoking*, and that deaths due to asbestosis were not known until after the 1960s despite the fact that asbestos had been used as a building material since the end of the 19th century.³⁷

We cannot afford to be unsuspecting recipients of this artificial electromagnetic radiation which has been newly introduced in such a short period of our history. Associate Professor Olle Johansson, of the Department of Neuroscience at the Karolinska Institute in Sweden, commented that today no one would consider having a radioactive wristwatch with glowing digits (as you could in the 1950s), having your children's shoes fitted in a strong X-ray machine (as you could in the 1940s), keeping radium in open trays on your desk (as scientists did in the 1930s) or X-raying each other at garden parties (as physicians did in the 1920s).³⁸

These examples relate to *ionising* radiation; apart from nuclear fallout, we have a choice whether to expose ourselves to it or not.

Many different types of artificially created radiation have been woven into our daily lives.

It is awareness that will bring understanding of the different types of radiation so we can make our own informed choices on what we are willing to be exposed to and what we must avoid. School teachers and principals alike must be educated on this most important health issue so that measures can be put into place to ensure that they and our children are not at risk in a dirty electrical environment, for dirty electricity has been found to be especially prevalent in environments with concentrated fluorescent lights and computers. Employers and employees alike must understand that their workplace must also be protected. People in their own homes must also protect themselves from modern equipment that also generates dirty electricity.

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Finally, Dr Cedric Garland, the epidemiologist currently investigating the breast cancer cluster on the campus of the University of California, San Diego, is focusing on the possible role of EMFs, especially transients.³⁹ Dr Garland advised that the female employees should be informed about tamoxifen research—that ELF EMFs have been found to partially block this drug's action in preventing breast cancer spreading or a recurrence of breast cancer—and recommended that those taking the drug should be transferred to a lower-current area if they so desired.

Transients cause cancer. Just as we filter our water to remove contaminants so we have cleaner water, now we must filter our electricity to remove this contaminant so we have cleaner electricity. ∞

About the Author:

Donna Fisher, based in Brisbane, Queensland, Australia, is the chair of Donna Fisher Silent Fields Inc., a non-profit organisation that is working towards the implementation of legislation against "dirty electricity" with the aim of protecting people in the workplace.

Her model is now being incorporated across the globe, especially in the European Union. She is also CEO of the Donna Fisher Breast Health Initiative, which is committed to *noninvasive* technologies for prevention, detection and cure of breast cancer and supports eliminating the environmental causes of breast cancer with particular focus on chemicals and radiation. Donna Fisher is the author of *Silent Fields: The Growing Cancer Cluster Story – When Electricity Kills...* (Lindlahr Book Publishing, Queensland, 2008; reviewed in NEXUS vol. 15, no. 6) and the forthcoming *More Silent Fields: Cancer and the Dirty Electricity Plague – The Missing Link...* (Joshua Books, Queensland, 2009; see review in our next edition).

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Editor's Note:

This article comprises edited extracts from Donna Fisher's two books, *Silent Fields: The Growing Cancer Cluster Story* (chapters 3, 5, 6 and 9) and *More Silent Fields: Cancer and the Dirty Electricity Plague* (chapters 2, 4 and 8).

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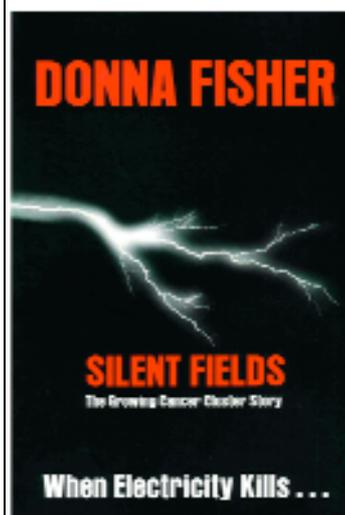
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- dirty electricity
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