MedBulletin

Canada's Public Health Care System: A Common Misnomer

MedBulletin by Keon Maleki

Canada's health care system is regarded as a flagship example of a publicly funded system. In every province, a non-profit entity is responsible for the provision of virtually all hospital and physician services. Advocates of the current system maintain that Canada practices "socialized medicine"; however, it is increasingly apparent that Canadians spend a greater proportion of their yearly income on drugs, dental care, and health-related transportation services.

Despite providing more comprehensive public coverage in hospital and physician services, the Canadian system is one of the least equitable public health plans among developed countries. Over the past twenty years, the cost per unit of care for Canadians has steadily increased. Innovative technologies designed to reduce costs and improve efficacy are considered part of "premium" health insurance plans only available through private payment. Accompanied by a consistent increase in the prices of drugs, medical governing bodies have chosen to increase private investment, thereby reducing public financing. The cuts in the public sector have been unbalanced, coming almost entirely from hospital budgets. The proportion of spending on hospital care has decreased from 45 percent of total health care expenditures to 30 percent over the past thirty years. This has a direct impact in the reduction of available hospital beds.

As the consequences of a growing private component in the Canadian health care system becomes increasingly more evident, the notion that Canada is a model for a purely public health care system needs to be reconsidered.

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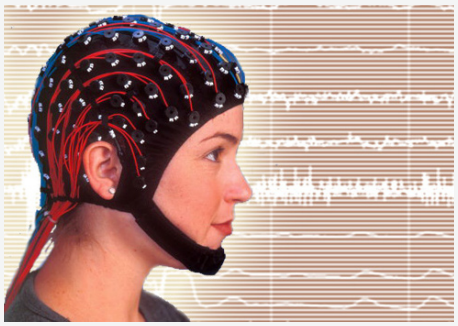
No More Lying?

MedBulletin by Ahmad Al-Khatib



A judge in India recently sentenced Aditi Sharma to life in prison based on accusations of poisoning her former fiancé. The ruling has received worldwide attention because it was based on evidence from the recently developed Brain Electrical Oscillation Signature (BEOS) test. The test relies on the measurement of changes in electrical brain waves as an alleged event description is read to the accused individual. These changes are measured by an electroencephalogram (EEG), and then interpreted by a software to determine if brain regions relating to memory have been excited. The neuroscientist developer, named Champadi Raman Mukundan, claims that the BEOS test is capable of distinguishing between deeds that a person has a committed, and deeds that a person has merely observed. In the case of Aditi, the BEOS test showed large levels of brain activity in the areas responsible for memory of committing the crime, as prosecutors believed it occurred, when read to her.

While psychologists and neuroscientists are excited about this new technology's potential, they are concerned that it was applied far too quickly. Mr. Mukundan has not published data from BEOS tests, nor has he allowed the technology to be validated by the scientific community. As a result, the ruling of the judge is being called to serious question. However, if the BEOS test does become accepted as a standardized test in future court rulings, it promises to revolutionize criminal investigations by eliminating the need for harsh interrogation techniques. However, Hank Greely, a Stanford bioethicist, asserts that this technology could cause enormous ethical and legal breaches, "implicating violations in at least the First, Fourth, Fifth, Sixth, Seventh and 14th Amendments to the U.S. Constitution."

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Caffeine: Harmful Drug or Healthy Boost?

MedBulletin by Alyssa Cantarutti

Trimethylxanthine is a drug consumed by Canadians daily. Most of us know it as caffeine, and it is what makes the first cup of coffee in the morning as appealing as it is. Up to 80% of adults include some sort of caffeine intake in their day. However, there are health risks associated with consumption that are often overlooked because caffeine is rarely classified in popular culture as a drug.

Health Canada recommends that adults take in a maximum daily dose of 400 to 450 mg of caffeine. A single large coffee (approximately 500 mL) contains 200 to 400 mg. As easy as it is to reach maximum recommended levels just by drinking coffee, it is important to recognize that caffeine is also found in tea, energy drinks, sodas, chocolate, and many cold medications. In September of this year, researchers called for a mandated labelling of caffeine levels in beverages - some energy drinks contain as much caffeine as 14 cans of soda! At 600 mg in a single day, an individual may start to experience symptoms of caffeine overdose, such as restlessness, nausea, headache, and irregular heartbeat.

Once caffeine is in the bloodstream, it has many of the same effects as cocaine and heroin, including a temporary sense of euphoria. Adenosine reception is blocked, which increases one's alertness. Adrenaline production increases and changes in dopamine levels induce a sense of well-being. Unfortunately, this creates a set of extremes within the body. When caffeine is metabolized, its effects wear off and one faces fatigue and depression. Consequently, the body craves more caffeine, and this internal cycle begins again.

Caffeine isn't entirely harmful, however, as several studies have suggested possible beneficial effects after intake. These include helping premature babies survive the first days of life, reducing the risk of developing Parkinson's disease, and improving memory retention in women.

Like many drugs, caffeine affects different people in different ways. Some are far more tolerant than others. Individuals who want to reduce their intake of caffeine will likely experience withdrawal symptoms for a few days, including headaches, irritability and nervousness. Carefully monitoring and gradually reducing caffeine consumption, as well as replacing caffeinated beverages with decaffeinated ones are some of the recommended strategies to minimize the effects of withdrawal.

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Mind Power Moves Paralyzed Limbs

MedBulletin by Hiten Naik

Researchers at the University of Washington have shown that it is possible to capture signals from the brain with a device and redirect them to innervate paralyzed limbs.

When the spinal cord is damaged, communication between the brain and limbs is prevented. However, the limbs themselves are not damaged, and recent studies have suggested that quadriplegic subjects can still exhibit conscious control over the motor cortex of the brain. Therefore, the paralysis can theoretically be relieved by developing an alternate route that connects the motor cortex to the limbs. The brain-machine interface device developed by the researchers accomplishes this by converting brain signals into electrical impulses. This cell-phone-sized gadget allowed temporarily paralyzed monkeys to contract muscles in their arms, and the scientists believe it was a first step towards producing more complicated movements.

In addition to performing trials on humans, the scientists must also develop ways to integrate sensory feedback in the system. At the moment, the interface only communicates in one direction, and it may be many years before a practical model is developed. A device capable of processing sensory input and motor output would provide a convenient alternative to robotic limbs.

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Keeping the Red Wine Flowing Helps Cut Cancer Risks

MedBulletin by Randal DeSouza

Red wine may do more than just complement pasta. A new study showed that a glass of red wine at dinnertime, or using it to cook food, can decrease the risk of lung cancer. While the findings were restricted to men only, health benefits of theantioxidant component of red wine have been well-documented. In addition,it is believed to protect against lung cancer particularly among smokers.

This study analyzed data from the California Men's Health Study, which linked clinical data with self-reported data from men between 45-69 years. Researchers pinpointed the onset of lung cancer in men and studied the effects of consumption of various alcoholic beverages such as beer, red wine, white wine and liquor with the risk of lung cancer.

Among study participants, there was a two percent lowered risk of lung cancer with each glass of red wine consumed per month. However, the most substantial risk reduction was observed among smokers who drank one to two glasses of red wine per day. The researchers reported a stunning 60 percent reduction in risk for lung cancer amongst these patients, while no such correlation between the other beverages and lung cancer were found.

Red wine contains high levels of antioxidants - substances that are extremely beneficial to general health. It is also rich in resveratrol, a compound derived from grape skins which has significant health benefits as established in preclinical studies. Despite these results, researchers cautioned that the best way to reduce the risk of lung cancer was to stop smoking, as smokers who consumed red wine were still at a higher risk than non-smokers.

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Are Doctors Responsible for the Care of Unborn Children?

MedBulletin by Sangeeta Sutradhar

Accutane, a popular drug prescribed for acne treatment, is known to cause severe defects in fetuses. When a Toronto doctor, Dr Shaffiq Ramji prescribed this medication to expectant mother Dawn Paxton, Paxton's child was born paralysed in portions of her face, without a right ear.

Despite such dire consequences, the Ontario Court of Appeal denied the now grown-up child's right to sue Dr Ramji, his defence being that his primary obligation was that of the female patient, and not of her unborn child. The court's decision reflects society's concerns regarding similar controversial subjects, such as abortion and stem cell research. Where should the line be drawn between a mass of cells and an unborn human being?

The judge ruled that Dr Ramji's position as a doctor in relation to an unborn fetus is remote and irrelevant, especially since adequate healthcare was ultimately provided for Mrs Paxton. This ideology questions how extensive a doctor's obligation of care towards his patients should be. Another argument from the defence was that an unborn fetus cannot be advised or take instructions in regards to any sort of treatment.

The ethics behind the true definition of a living human has been subject to countless debates. In Jaime's case, the court sees no way to compensate a child who becomes deformed in the womb, which in turn, resonates social concerns regarding when a fetus is ethically and legally considered a human being.

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