

that it is still too early to recommend routine use of Doppler ultrasonography to predict a pregnant woman's risk of developing pre-eclampsia and intrauterine growth restriction.

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Electronic medical records

We wish to comment on the editorial about electronic medical records.¹ Adoption of electronic health records has been slow in Canada. In some provinces fewer than 30% of medical practices use an electronic health record as their primary record-keeping

tool and many of these practices do not use essential features of the system. Perhaps the design and deployment of these systems could account for this disturbing statistic.

Vendors of electronic record-keeping systems tend to focus on the expedient addition of clinical data. However, the increasing quantity of longitudinal information that includes personal and family histories, detailed notes on clinical encounters, laboratory results and referral material can result in data overload. Thus, the electronic medical record can become a hindrance rather than a support.

The needs of all stakeholders must be carefully considered in the design of electronic medical record-keeping systems. To be relevant and useful to clinicians and their patients (the primary stakeholders), electronic health records need to be used at the point of care. Policy-makers in the health care system are important secondary stakeholders because data from electronic records can be collated for use in managing the health care system.

Software vendors and the provincial bodies responsible for electronic health record certification must understand the impact of the way in which information is presented on the usefulness and usability of electronic records. Rather than being a passive repository of information, the electronic record should be capable of revealing complex trends and patterns. As well, training methods must be adjusted so that health care providers are taught to understand that facts must be added to the health record in the context of continuing care and not only to provide a medicolegal historical record.

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Medical isotope production and nuclear terrorism

Two recent *CMAJ* news articles gave good insights into last December's medical isotope crisis.^{1,2} It was inspiring to read how our colleagues in nuclear medicine coped with the interruption in the isotope supply.

It may not be widely known that the manner in which medical isotopes are produced in Canada is unintentionally exacerbating the problem of nuclear terrorism. Uranium contains 2 isotopes, uranium 238 (U 238) and uranium 235 (U 235). Natural uranium consists of 0.7% U 235 whereas highly enriched uranium consists of more than 20% U 235. Most of the medical isotopes produced at the Chalk River facility are made from weapons-grade highly enriched uranium. Highly enriched uranium is one of the main ingredients in homemade nuclear bombs, and its theft and smuggling cannot reliably be detected.³

Canada's MDS Nordion, one of the 4 major international suppliers of medical isotopes, imports about 20 kg of weapons-grade highly enriched uranium from the United States annually to produce its isotopes. In the process of making medical isotopes, about 97% of the bomb-grade material remains unused. These ever-increasing leftovers, sufficient to make several Hiroshima-sized bombs, are deposited in commercial sites that constitute a long-term security risk.

There is another option. The production of medical isotopes can be converted from the use of highly enriched uranium to the use of low-enriched uranium (which cannot be used to make a nuclear bomb) without technical obstacles.⁴ This is being done successfully in smaller facilities in Argentina, Indonesia and Australia. For Canadian suppliers, the conversion would entail an initial cost for retooling, but thereafter the production costs would be comparable to those with highly enriched uranium.⁵ In the long term, there may actually be savings as the costs of storing weapons-grade highly enriched uranium would be eliminated. As the sole purchasers of medical isotopes, health

care professionals have leverage and can put pressure on MDS Nordion to use low-enriched uranium.

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Safe drinking water for rural Canadians

In a recent *CMAJ* editorial, Steve Hrudehy correctly stated that Canadian water quality is a rural versus urban issue.¹ Canadian cities have some of the best-quality sources of raw water in the world and the financial and technical resources to treat the water with processes that take hours and use sophisticated techniques. Most cities treat their water to standards even higher than those outlined in federal or provincial guidelines.

In contrast, raw water supplies in rural Canada are often small and of poor quality. The water drains mostly from farmland and may contain *Escherichia coli* and other bacteria, parasites, viruses and organic material that can be difficult even for city-based treatment plants to remove. Most rural communities treat their raw water supplies using only a few simple processes that take minutes.

This is the crux of the problem: rural water needs better treatment than urban water because it is of poor quality. Is it any wonder that most rural water treatment plants cannot meet current Canadian guidelines for drinking water quality? In many rural communities,

drinking water is assessed using only a small subset of the guidelines and the response to boil-water advisories is often just to add more chlorine.

There are 2 ways to solve the problem with rural water supplies. The first solution is to pipe in water from regional treatment plants. This approach may make financial sense but there may be microbial issues, such as the growth of nontuberculous mycobacteria.² Unlike urban distribution systems, rural pipelines are typically very long and have a small diameter. The use of small-diameter pipelines results in long water residence times, higher surface area and loss of disinfection residuals. Attempts to increase the longevity of these residuals (e.g., by chloramination) are not effective when oxidation-resistant bacteria such as nontuberculous mycobacteria are involved. Many organizations and agencies that promote a pipeline approach have in the past labeled pipeline water as nonpotable even when fully treated water was being distributed. This permitted local authorities to circumvent any requirement for water quality testing to comply with drinking water guidelines. Few consumers receiving this water would bother to retreat it as they believed it must be of high quality because it was provided by government agencies.

A simpler and universal solution exists. Better water treatment systems are needed for rural water users.

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Faith and the end of life

The recent *CMAJ* editorial about the problems associated with ending life

support against the wishes of the patient's family was a pleasure to read.¹ However, a few key issues were not addressed.

First, Samuel Golubchuk was an orthodox Jew; his faith underlies all of his family's demands. For an observant Jew, extraordinary treatment is not a choice but is an obligation. This obligation to maintain life was the basis for similar suits brought against the Jewish General Hospital in Montréal, Quebec, by the family of a man known as Otto G. and the family of Herman Krausz. It is not unique to Judaism; the family of Terri Schiavo in the United States found justification in their Christian faith to make similar demands. Second, the editorial did not mention that the Canadian Charter of Rights and Freedoms protects freedom of religion and did not discuss the implications of this protection in such cases.

Third, the fact that our single-provider health care system has limited resources is another key issue that was not discussed in the editorial. Indeed, in all the legal cases I have mentioned, the "unpluggers" evoked resource allocation more often than the best interests of the dying. The editorialists should have noted that in countries where private health care is legal, families have the option of paying for extra treatment.

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[The authors respond:]

We thank Emmanuel Maicas for his comment, but we believe his disagreement arises from a misreading of our editorial.¹ He is not correct that our editorial "did not mention that the Canadian Charter of Rights and Freedoms protects freedom of religion and did not discuss the implications of this protection." On the contrary, our editorial expressly acknowledged