

der has demonstrated a significantly increased risk of driving problem behaviours in people with attention-deficit hyperactivity disorder. This issue is addressed in the latest edition of the CMA's recommendations to physicians concerning medical fitness to drive.<sup>5</sup> Recent clinical reports have examined the subjective and objective benefits of stimulant medications for driving performance in adults diagnosed with adult attention-deficit hyperactivity disorder.<sup>6-8</sup>

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### Catholic bioethics

Hazel Markwell and Barry Brown state that certain matters concerning reproduction viewed from a natural-law perspective would be seen as intrinsically evil, but that they might be regarded as justifiable from a proportionalist perspective.<sup>1</sup>

Proportionalism is an ethical theory that holds that there is no such thing as an act that is intrinsically evil, and also that any act may be justified by the intention for which it was chosen or the

totality of the foreseeable consequences of that act for all persons concerned.

I would like to point out that this thesis was rejected and condemned by Pope John Paul II in his encyclical *The Splendor of Truth*.

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### Responsible drug disposal program in North Vancouver

Lions Gate Hospital (LGH) in North Vancouver has an ecological footprint of 739 times its actual size.<sup>1</sup> This means the hospital requires an area of land 739 times its actual size to supply the resources it requires and absorb the waste it produces. Waste from items including paper, latex, plastic, medications, and packaging has placed a burden on the environment. Currently, LGH is the only hospital that has had its ecological footprint measured; thus comparisons to other hospitals cannot be made.

In Nov. 2001, physicians and patients were invited to bring to the hospital any unused or expired medications for incineration and proper disposal. All drug products were accepted, including samples, prescription and nonprescription items.

Forty-seven kilograms of medications were collected from 25 people over 2 days. The wholesale cost of identifiable products totalled more than \$20 350. Medications that were unidentifiable or no longer available were not included in the total cost. The majority of drugs (87% of total cost) were from physician samples; many of the products collected were cardiovascular medications or items used in women's health (see the accompanying charts to this letter at [www.cmaj.ca](http://www.cmaj.ca)).

Samples collected from 12 physicians alone valued in excess of \$17 000. If this number was extrapolated to approximately 250-300 physicians in the hospital, the wastage would be well over \$350 000-\$425 000. This cost is borne ultimately by the consumer or third-party payer. The issue of accepting and providing medication samples is beyond the scope of this letter.

The proper disposal of medications is important for preserving our environment. Findings from a recent US Geological Survey have reported pharmaceutical contaminants in US streams, including nonprescription drugs in 81% of their streams, antibiotics (48%) and other prescription drugs (32%).<sup>2</sup> Though the clinical relevance of these findings awaits further studies, proper disposal of medications may ease the burden placed on our environment.

Health Canada announced in Sept. 2001 that new legislation will be developed requiring products regulated under the Food and Drugs Act to also meet environmental assessment standards<sup>3</sup> (see News, p. 1326). According to their Web site, "Health Canada and Environment Canada will create a scientific expert panel to provide a technical foundation for the development of the regulatory framework ... . After September 13, 2001, companies seeking approval to import and manufacture new products regulated under the Food and Drugs Act will need to notify the Minister of the Environment under the New Substances Notification Regulations of the new Canadian Environmental Protection Act (CEPA)."

In our community, 3 end users of medications contribute to waste: pharmacies, patients and physicians' offices. For pharmacies, expired or unused medications are either returned to the manufacturer or incinerated. For patients in British Columbia, the collection of medication waste from patients falls under the Post-Consumer Residuals Stewardship Program Regulation<sup>4</sup> and is funded by the pharmaceutical manufacturers. Participating community pharmacies will accept expired or unused medications, for proper disposal, at no cost to the patient. Similar programs

exist in Alberta, Saskatchewan and Quebec, and various other provinces are now developing programs. For physicians' offices, opportunities are more limited. Although the *Code of Marketing* from pharmaceutical companies states that "companies are responsible for making sure that all excess and/or expired clinical evaluation packages of their own manufacture are returned to the company's storehouse or head office,"<sup>5</sup> this does not consistently occur in practice. As our study showed, potentially 50 kg of medications would have been thrown in the garbage, landfill or toilet (or kept in the office) if we had not provided an outlet.

For physicians with cupboards full of expired medications without a proper outlet for disposal, we strongly urge you to i) accept medication samples only if your pharmaceutical representative will collect expired/unused samples, or ii) just say NO.

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## Arterial dissections after cervical manipulation

Chiropractors across Canada are claiming endorsement from the *CMAJ* that the risk of a stroke from neck manipulation is one in 5 850 000.<sup>1</sup> In the Dec. 2001 edition of the *Canadian Chiropractor*, Paul Carey claims, "the key difference is that it was published in a major peer-reviewed journal."<sup>2</sup>

For the denominator, the authors used all types of neck manipulations done by chiropractors. No distinction was made between those done at the atlas and the axis and those done lower in the neck. Nor was there any distinction made between the velocity, amplitude and degree of rotation of the manipulation. This is equivalent to trying to find out the side effects of thalidomide by counting all pills of any kind prescribed to all people.

For the chiropractors, the numerator was "did the patient sue?" Thus a patient lying in a hospital bed, with a proven prospective dissection on angiogram following a chiropractic neck manipulation, is excluded if they did not take legal action.

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#### [Two of the authors respond:]

We took great pains in our research letter not to claim that we were presenting an incidence study of arterial dissection, but rather we described the likelihood that a chiropractor would be made aware of such an occurrence. The statement that only cases that led to lawsuits were included is incorrect. Chiropractors are required to report all cases of neurological symptoms that may indicate a stroke following treatment. Of the 43 cases reviewed, only 22 actually filed a lawsuit.

We found that chiropractors were made aware of 23 cases of dissection following manipulation over a 10-year period in Canada, where approximately 30 million chiropractic visits occur each year. The case-control study by Rothwell and colleagues<sup>1</sup> noted 6 cases of vertebral artery occlusion that could be attributed to chiropractic manipulation over a 6-year study period in Ontario, where 10 million chiropractic visits occur each year. This suggests that the number of cases brought to the attention of chiropractors was similar to that anticipated from the only case-control study in Canada.

A recent review of the literature, and multiple cases of stroke associated with manipulation, has shown that dissection can occur following any method of manipulation or any type of trivial neck movement or trauma and is not limited to those movements that have only rotation and extension.<sup>2,3</sup> This observation led us to survey the total number of manipulations rather than specific types of manipulation.

Schievink and colleagues suggest up to 50% of strokes following manipulation occur in patients with neck pain caused by an unrecognized spontaneous dissection prior to chiropractic treatment.<sup>4</sup> This explains how dissection can occur with any movement of the neck in a predisposed patient. To reduce the frequency of dissections associated with manipulation, the ability to diagnose a dissection prior to manipulating the cervical spine may be a fruitful area for further research.

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