Women's Health Council, have recognized this gap in scientific evidence and that studies to address this question are under way.

**Harriet L. MacMillan**
Departments of Psychiatry and Behavioural Neurosciences and of Pediatrics
**C. Nadine Wathen**
Offord Centre for Child Studies
McMaster University
Hamilton, Ont.

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## The high impact of an influenza pandemic

I applaud the *CMAJ* for its efforts to increase public and political awareness of the potential impact of an influenza pandemic in Canada. However, I would like to clarify one of the numbers that appeared in a recent news article.[1]

It is difficult to precisely quantify — or to exaggerate — the impact of the next influenza pandemic. That impact will depend on how virulent the virus is, how rapidly it spreads from person to person, and how effective and available prevention and control measures prove to be. Estimates based on previous pandemics (in 1918, 1957 and 1968) can be used as a guide, but global travel is far greater than ever before and will no doubt accelerate the speed of international spread, as with SARS.

Models have been developed to estimate the possible impacts of the next pandemic,[2] but they are based on assumptions derived from the US experience, and their applicability to other health care settings or systems is limited. Nor do these models incorporate the use of antivirals or vaccines, should these become sufficiently available.

Estimates of impact can nevertheless be useful in showing the scale or magnitude of the crisis relative to that of other disasters and in increasing the awareness that is critical to preparation and planning required to minimize that impact. Assuming attack rates in the range of 15% to 35% during the next influenza pandemic, the Canadian Pandemic Influenza Plan (www.hc-sc.gc.ca/pphb-dgspsp/cpip-pclcpi/) incorporates the Meltzer model in estimating that 5–10 million Canadians could become clinically ill, such that they would be unable to attend work or other activities for at least half a day. Furthermore, an estimated 2–5 million Canadians would require outpatient care, between 30 000 and 140 000 would require admission to hospital, and between 10 000 and 60 000 could die. As such, although it is staggering to imagine and difficult to accept, the estimate of 50 000 cited in the *CMAJ* article[1] refers not to the number in Canada who could become ill but to the number who could ultimately perish.

Because communities would be affected over a short period of time (6–8 weeks), simultaneously and possibly in 2 waves during the same season, a pandemic of influenza will be unlike any other catastrophe. The SARS outbreak was an important but limited rehearsal that has helped further refine our preparedness. Technology has improved substantially since avian influenza H5N1 first appeared among humans in 1997, and our ability to detect and respond to this virus and its pandemic potential is far better. Either way, it is clear that a pandemic of influenza has the potential to be exponentially worse than SARS in its capacity to cause human suffering — both illness and despair — let alone economic and social upheaval.

Given the warning signals repeatedly emanating from Southeast Asia, an all-out and unified international effort to mitigate this possibility should be undertaken now.

**Danuta Skowronski**
Epidemiology Services
BC Centre for Disease Control Society
Vancouver, BC

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## Direct-to-consumer advertising

Barbara Mintzes and colleagues[1] seem to demonstrate that direct-to-consumer advertising (DTCA) has net benefits, despite their own pessimistic interpretation. Patients who requested advertised drugs received them in 86.5% of cases, whereas only 26.2% of patients who did not make a request received a prescription. However, 74.3% of patients who requested nonadvertised drugs received prescriptions. Thus, although DTCA was associated with a greater proportion of requests that were fulfilled, the effect was minor relative to other, unexplained, reasons for requesting prescriptions.

For prescriptions that were given without being requested, physicians considered only 12.1% "possibly" or "unlikely" to be appropriate for similar patients. However, for requested prescriptions for advertised drugs, the share was 50.0%, and for requested prescriptions for nonadvertised drugs it was 39.6%. Thus, the same principle applies here as above.

Of prescriptions for advertised drugs, half were unambiguous (i.e., were not associated with physician ambivalence about appropriateness), and it is not stated how many, if any, of these ambiguous prescriptions had negative outcomes. I have shown elsewhere[2] that if less than 42% of ambiguous prescrip-

tions cause negative outcomes, DTCA has a net positive effect, and the true value is probably less than this. A US Food and Drug Administration (FDA) survey of 500 American physicians reported that in 82% of cases, the fact that a patient had seen a DTC ad did not create any problems in the physician's interaction with the patient.[3]

In an open society, those who advocate restricting freedom of speech must make an ironclad case for public harm when they argue that drug-makers should not enjoy the same rights as the rest of us. Mintzes and colleagues are far from doing so.

**John R. Graham**
The Fraser Institute
Vancouver, BC

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Barbara Mintzes and colleagues[1] conclude that if a patient brings up a DTCA drug with a physician, a prescription is likely to result. This conclusion might lead us to think that doctors feel pressured into prescribing medication. However, other studies have demonstrated that this is not the case. Spurgeon[2] reported that doctors said they felt "little" or "very little" pressure from their patients related to DTCA. In fact, only 6% of the 200 general practitioners surveyed felt strongly pressured to prescribe medication that the patients had learned about through advertising. All of the doctors who opted for the medications that patients had requested (instead of their usual choices) agreed that the prescriptions were acceptable for the diagnosed conditions.

In a recent personal communication with Mintzes (Barbara Mintzes, Centre for Health Services and Policy Research, University of British Columbia, Vancouver, BC: personal communication, 2003) I learned that physicians in the published study[1] judged a total of 92% of new prescriptions for requested DTCA drugs to be "very likely" (50%) or "possible" (42%) choices for similar patients with the same condition. It would seem that both these options indicate some degree of confidence in the medications, since the word "possible" means that a thing may occur under appropriate conditions (such as a similar patient with the same condition). This perspective on the data is quite different from that presented by Mintzes and colleagues,[1] who judged physician confidence in treatment choice in much more limited terms (they defined physician confidence on the basis of drugs that would be a "very likely" choice, i.e., 50%).

Moreover, DTCA was shown to be informative. Close examination of the results[1] reveals that the patients who were most exposed to the advertising of prescription medicines were the ones that physicians considered the best informed. For 71.4% of prescriptions requested by patients in Sacramento, where advertising is more common, the physician considered the patient to be knowledgeable about the medicine; in Vancouver, the proportion was 53.3% (these data are for any drug, not just DTCA drugs).

These findings are congruent with those of a previous study[3] involving 454 family doctors, who agreed that DTCA encouraged patients to take an active role in managing their health and led them to seek advice about problems that would otherwise have gone untreated.

Opponents of DTCA have never succeeded in demonstrating that the costs generated by an increase in the number of patients obtaining prescriptions for a drug that has been promoted by advertising are greater than the savings achieved by associated reductions in health services fees (e.g., hospital costs).

**Marc Lacroix**
President and CEO
LXB Communication-Marketing
Montréal, Que.

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**[Three of the authors respond:]**

DTCA is illegal in Canada, which serves as a measure to protect those who are ill from undue marketing influences and from the harm that might result from medically unjustified use of medications. We trust that John Graham is not suggesting that the burden of proof be on health authorities to provide ironclad evidence of harm in order to maintain such safeguards.

Graham's claim that DTCA has net benefits if it elicits no greater ambivalence than requests for nonadvertised drugs assumes that the latter are beneficial. Antibiotics, anxiolytics–hypnotics, stimulants and narcotic analgesics were among the nonadvertised drugs requested in our study.[1] Advertising is not the only factor associated with pressure to prescribe, but if it adds to existing pressures, the net effect would be greater harm.

Graham quotes an FDA survey of US physicians, only 18% of whom felt that DTCA had created problems with a patient encounter.[2] However, 47% reported some pressure to prescribe, and 17% reported that the pressure was moderate to strong. In our study,