can work together to encourage these women. During the postnatal period nurses are the principal caregivers. Assisting women to learn the art of breast-feeding, to understand its benefits and to persevere is what nurses do well and take the time to do. Physicians and nurses must foster practices that enhance lactation, encourage breast-feeding women in their efforts and inform them of the normal behaviour and capabilities of infants.

If the duration of breast-feeding is to be increased nursing mothers will need support on their return home.[1] Such support can be provided by physicians in their offices, by community health nurses during home visits or at well-baby clinics. The effectiveness of La Leche League volunteers is also well known.

Language- and culture-specific assistance with breast-feeding should be possible, given the numbers of members of ethnic minorities in the professions of medicine and nursing in Canada today.

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Reference

1. HOUSTON MJ, HOWIE PW: Home support for the breast-feeding mother. *Midwife Health Visit Community Nurse* 1981; 17: 378–382

Value of preventive medicine

I find the comments of David Woods in the Publisher's Page one of the more interesting features in *CMAJ*, but his analysis of the value of preventive medicine (*Can Med Assoc J* 1983; 129: 911) is superficial, if not downright sloppy.

If Mr. Woods had thought a little longer about the contentions that preventive medicine does not reduce costs because "the cheapest approach is to have your coronary at 62 and go" and "if we all live until we're 90, we're going to be very expensive indeed" he would have realized that cost effectiveness must be taken into account in a comparison of differing approaches to improving health. What the worth of those 28 extra years of life might be and how their quality is to be accounted for is a matter of values and cannot be reduced to monetary terms (which is why the term "cost effectiveness" is preferable to "cost benefit" in this context).

Nevertheless, introduction of preventive programs has not generally been followed by a decrease in costs: however cost effective an approach might be, total costs will not be reduced unless it displaces less cost-effective approaches. For most commodities this would mean that if a need was satisfied at low cost the demand for a higher-cost alternative would diminish. In the case of medical care, demand is related less to need than it is to supply (i.e., the number of physicians). This supply-induced demand means that reduction of medical costs in our present system is impossible by *any* means, short of rationing the supply.

Mr. Woods' next error of logic — arguing from the particular to the general — appears in the very next paragraph. To say that all preventive medicine is ineffective because there are doubts about the efficacy of exercise in the prevention of heart disease is rather like saying that antibiotics are useless because penicillin does not affect the course of the common cold. A more balanced picture would have been given if Mr. Woods had mentioned such preventive measures as immunization against communicable diseases, screening for phenylketonuria, antenatal care, mammography and Papanicolaou smears.

Perhaps what Mr. Woods was attempting to say is that preventive programs are not necessarily effective and may produce diminishing returns. While this is undoubtedly true, one wonders why these should be characteristics only of the preventive approach. Surely if one were interested in reducing costs one might save more by abolishing coronary bypass operations than by abolishing Participaction.

As for the conclusions of the Canadian Medical Association's department of medical economics report, I heartily agree that preventive programs should be subject to cost–benefit analysis. I suggest that this analysis be done about the same time as such "curative" programs as cough medicines, Teflon tubes in ears and corrective shoes for flat feet undergo similar scrutiny.

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[David Woods replies:]

I appreciate Dr. Mowat's enthusiasm for the Publisher's Page in general, but I take issue with his demurrer about this one in particular.

I did not say that preventive medicine does not reduce costs; I said that it *might* not cut the costs of health care dramatically and then went on to quote health economist Dr. Robert Evans' contentions in the matter, not mine.

Dr. Mowat's point that I am arguing from the particular to the general (which, incidentally, is not always an error of logic) is sophistic rather than germane since I did not say what he claims I did. What I *did* say was that nobody seems to be quite certain what constitutes prevention. Until that's known, cost–benefit analysis will be hard to do.

DAVID WOODS
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Drugs, heat stroke and dantrolene

Reading Tyndel and Labonté's letter on drug-facilitated heat stroke (*Can Med Assoc J* 1983; 129: 680, 682) and then rereading Stadnyk and Glezos' article on the same topic (*Can Med Assoc J* 1983; 128: 957–959) I was impressed by similarities other than the "heat stroke" in the reported cases. Both of the patients were being treated with phenothiazines, and in both cases the outcome was fatal. The cases were compatible with a diagnosis of neuroleptic malignant syndrome, a well recognized complication of phenothiazine therapy.[1] Tyndel and Labonté's case followed the classic picture more closely, with its insidious onset, markedly elevated serum level of

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creatine kinase and death from renal failure and pulmonary edema 3 days after the patient had been found comatose. The only problem with the diagnosis of neuroleptic malignant syndrome is that the patient's muscles were flaccid.

There are many striking similarities between neuroleptic malignant syndrome and malignant hyperthermia, including muscular hypertonicity, hyperpyrexia, autonomic dysfunction and elevation of the serum level of creatine kinase.[2] Muscular rigidity is not present in all cases of malignant hyperthermia, and it is conceivable that rigidity may not be an essential feature of neuroleptic malignant syndrome either, especially if the two conditions are related. Muscular rigidity is often associated with heat stroke also.

Because of the similarities between neuroleptic malignant syndrome and malignant hyperthermia, dantrolene sodium (Dantrium), a skeletal muscle relaxant used to treat the latter when it occurs in an anesthetized patient, has been successfully used to treat the former.[3] Meyers[4,5] has for several years advocated this drug for the treatment of heat stroke since she is convinced that the three conditions are all different manifestations of a basic underlying condition, "thermic stress syndrome". In September 1982 M.A. Denborough, at the Third International Workshop on Malignant Hyperthermia, in Banff, reported a case in which intravenous dantrolene therapy produced a rapid recovery in a young soldier suffering from heat stroke after a march. M.E. Kolb, of Norwich–Eaton, manufacturers of Dantrium, reported at the same conference that a multicentre study had been organized in the United States to investigate the use of dantrolene in heat stroke. The year before, Lydiatt and Hill[6] published a case report of simple heat stroke treated successfully with dantrolene after symptomatic therapy had failed.

Therefore, the intravenous use of dantrolene in doses similar to those used to treat malignant hyperthermia occurring in an anesthetized patient should be considered when either neuroleptic malignant syndrome or "drug-facilitated heat stroke" is suspected. Coons and colleagues[3] used oral therapy with dramatic results. For comatose patients intravenous therapy should be used; vials of Dantrium intended for intravenous use, which also contain mannitol and sodium hydroxide, are probably available in the operating rooms of any major hospital, as well as in those of many smaller institutions. The dose should be 1 mg/kg initially but may safely be increased 10-fold if necessary to control symptoms. The major side effects, which are maximal with a dose of approximately 2.5 mg/kg,[7] are muscle weakness and nausea. Of course, symptomatic treatment, such as airway management, intravenous fluid therapy and cooling, must be carried out at the same time.

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References

1. CAROFF SN: The neuroleptic malignant syndrome. *J Clin Psychiatry* 1980; 41: 79–83
2. WEINBERG S, TWERSKY RS: Neuroleptic malignant syndrome. *Anesth Analg* 1983; 62: 848–850
3. COONS DJ, HILLMAN FJ, MARSHALL RW: Treatment of neuroleptic malignant syndrome with dantrolene sodium: a case report. *Am J Psychiatry* 1982; 139: 944–945
4. MEYERS EF: Thermic stress syndrome. *Prev Med* 1979; 8: 520–522
5. MEYERS EF, MEYERS RW: Thermic stress syndrome (C). *JAMA* 1982; 247: 2098–2099
6. LYDIATT JS, HILL GE: Treatment of heat stroke with dantrolene (C). *JAMA* 1981; 246: 41–42
7. FLEWELLEN EH, NELSON TE, JONES WP, ARENS JF, WAGNER DL: Dantrolene dose response in awake man: implications for management of malignant hyperthermia. *Anesthesiology* 1983; 59: 275–280

Excessive use of pyridoxine

In a recent letter Dr. S. Pilar (*Can Med Assoc J* 1983; 129: 536) points out that pyridoxine (vitamin B_6) has been used in the treatment of carpal tunnel syndrome and hyperemesis gravidarum. It has also been used, with variable success, for the treatment of premenstrual syndrome, schizophrenia and autism, and as part of body-building regimens.

At low doses this substance has not caused any harm and, indeed, may be therapeutic. But as with many drugs that are available without a prescription the possibility of excessive use exists. It was recently reported that patients taking megadoses of pyridoxine (2 to 6 g/d; the recommended daily intake is 2 to 4 mg) suffered from a sensory neuropathy that could be attributed only to the vitamin.[1] Therefore, patients who are advised to take pyridoxine or who are currently taking it should be warned to avoid increasing the dose without consulting their physician.

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Reference

1. SCHAUMBURG H, KAPLAN J, WINDEBANK A, VICK N, RASMUS S, PLEASURE D, BROWN MJ: Sensory neuropathy from pyridoxine abuse. A new megavitamin syndrome. *N Engl J Med* 1983; 309: 445–448

Adverse reactions to intravenous pyelography contrast agents

I suggest a strong word of caution regarding Dr. Gavin Hamilton's report of a recent increase in the incidence of adverse reactions associated with intravenous pyelography contrast agents in his radiologic practice (*Can Med Assoc J* 1983; 129: 405–406). First, this report appears to be based entirely on Dr. Hamilton's impressions and is not supported by documentation of the occurrence of reactions in his practice over a period of time. Dr. Hamilton's impressions, although interesting, are unconvincing as evidence of a true increase in the incidence of adverse reactions. Furthermore, any report of a perceived reduction in the incidence of reactions subsequent to the implementation of preventive measures must also be considered with extreme caution if it is undocumented and because of the inevitable strong assessment bias that results from prior conviction as to the cause of the problem.