



that are beyond their control.

The vision of the physician-patient relationship unrestrained by considerations of cost or the needs of others has not been the traditional view of prudent medical practitioners over the centuries. It is an aberration of the North American economic expansion following World War II, when relatively less expensive but increasingly effective treatments developed in an economy that could afford to distribute them liberally (Dr. Laurenc B. McCullough, Baylor College of Medicine, Houston: personal communication, 1997). The economic, social and technological characteristics of that era no longer apply, and we intensify the moral distress of physicians unwisely when we imply that patient care can now be viewed as unconstrained by finite national, provincial or institutional resources.

The second issue raised is whether the nature of the reimbursement system changes the way physicians should approach the allocation of health care resources. It does not. Insurance coalitions, however they are constructed, create a pool of fiscal resources to help defray the cost of various misfortunes, including illness. Because of the continuing expansion of expensive and effective treatment technologies, and the increasing age and needs of the beneficiaries, no system of payment for health care can accumulate sufficient wealth to eliminate the need for physicians to manage resources prudently. Physicians' participation in the moral analysis and just resolution of the allocation of finite health care resources is inevitably required — and entirely appropriate. Our thesis, clarified by Baltzan's challenge, stands.

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References

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A less conventional approach to re-entry training

From the article "Shortage of re-entry positions tackled on East Coast" (*Can Med Assoc J* 1997;157 [10]:1338), it seems clear that the number of re-entry positions available through conventional routes to physicians already in practice is not going to meet the demand for additional training. Fortunately there are less conventional ways of doing things, as a growing number of physicians and communities are discovering.

It is now relatively common for community hospitals to provide financial support to family physicians who wish to upgrade their skills or even complete specialist training in return for guarantees of service. I suspect it will not be long before communities offer to fund residency positions as a means of attracting physicians with needed skills and appropriate qualifications. There might even be some competition among medical schools to attract such additional sources of trainees and dollars.

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Annual visits to GPs by elderly patients

In the article "The health of Canada's elderly population: current status and future implications" (*Can Med Assoc J* 1997;157[8]:1025-32), Drs. Mark W. Rosenberg and Eric G. Moore use data from the Na-

tional Population Health Survey (NPHS) to explore the health of Canada's elderly population. They performed a logistic regression analysis to model the influence of chronic conditions on the likelihood of an individual visiting a GP more than once a year. I don't think that this is the best way to investigate utilization, because it is not necessary to use a dichotomous model to analyse frequency of visits. In any event, the authors must have made an error in their computations, because Table 5 shows negative values for the odds ratios. The odds ratio, $p/(1-p)$, where p is the probability of any particular event, can never be negative, because p can never be greater than 1.

I used a generalized linear model to investigate the frequency of visits to an academic family medicine clinic in 1993.¹ I found that the mean annual number of visits was greater for older patients, that women made more visits than men and that the presence of a chronic condition (such as back pain or hypertension, both of which appear in Table 5 of the article by Rosenberg and Moore) was associated with a higher frequency of visits. More complicated models than the one used by Rosenberg and Moore are needed to capture the complexity of health care utilization.

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Reference

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Drs. Rosenberg and Moore set out to address the health status of Canada's elderly population and its



impact on health care utilization. Unfortunately, they have added little to our current understanding and may in fact have created some confusion.

First, the authors could have used the NPHS in a more meaningful and creative way. Most of the tables and figures were adapted from published resources, so the paper does not present any new findings. The results are reported in an inconsistent manner because the authors were limited by the formats of the original publications. For example, the data in the tables and Figs. 1 and 2 were for people aged 55 years and over, presented in 10-year intervals, whereas those in Fig. 3 were for people aged 50 years and over, presented in 5-year intervals. No statistical tests or 95% confidence intervals were presented for any of the data.

Second, there are problems with the multiple logistic regression results shown in Table 5 (which appears to be the only table based on the authors' own analyses). Might the negative "odds ratios" in this table be regression coefficients that should have been further manipulated to generate the real odds ratios? It is disturbing that these values are then discussed as if they really were odds ratios.

The puzzling results are also reflected in the statistically significant associations between decreased GP consultations and some chronic conditions, such as arthritis or rheumatism and back problems. Apart from the problem with the odds ratios, the authors include disability in their model and treat it as a confounder. Disability is an intermediate variable lying between chronic conditions (cause) and increased GP consultations (effect). Including it in the model means that the true association between chronic conditions and increased health care utilization would be artificially underestimated. This is especially true for arthritis as the leading cause of disability.

Finally, the authors fail to describe

how they selected variables for and fitted the logistic regression model. Some of the included variables have a very low frequency: for example, among those aged 65 and over, only 22 reported epilepsy. Not only is the inclusion of low-frequency conditions such as epilepsy in conflict with the NPHS statistical analysis guidelines, but it also contributes noise to the model. The authors do not state the age range to which the model applies: aged 50 and over, aged 55 and over, or aged 65 and over? Other questions include whether age was used as a categorical variable (nominal v. ordinal) or a continuous variable, how income was defined and which level was used as the baseline, and how weight and design effects were treated in the regression.

We tried to replicate the results shown in Table 5 of the published paper using the 1994-95 NPHS data set, but the agreement between our findings and those of Rosenberg and Moore was disappointing.

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[The authors respond:]

We acknowledge that there was a problem in Table 5, which we missed during proofreading — odds ratios are indeed always positive.

As Drs. Wang and Badley point out, the values in Table 5 are regression coefficients, not odds ratios. They were derived according to a procedure similar to the one Dr. Finkelstein outlines, not logistic regression. The heading for column 2 of Table 5 is mislabelled and should read instead "Added number of vis-

its." In our model the dependent variable was the number of added visits to a GP and the independent variables were the medical conditions and the socioeconomic variables identified in Table 5. When all other independent variables are controlled for, the analysis yields the regression coefficients shown in Table 5. The interpretation of the numbers is consistent with the text on page 1030. For example, having Alzheimer's disease increases the number of annual visits to a GP by 1.87, when all other conditions and socioeconomic circumstances are controlled for. The crucial point is that this correction does not change the general argument that specific conditions increase the likelihood that elderly people will make more visits to their GP. We might also add that even though Dr. Finkelstein was working with different data, his results complement ours.

We apologize to *CMAJ* readers for any confusion caused by Table 5 and the corresponding discussion but would remind them that this unfortunate error in no way negates either the general argument we make about health and socioeconomic conditions of the elderly population and their meaning for the utilization of physician services or any of the other aspects of our article.

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Kudos for land-mine ban

Foreign Affairs Minister Lloyd Axworthy introduced a bill recently that will ban the use, manufacture and export of land-mines. Singer Bruce Cockburn was the first to bring this issue to my attention, and I learned more about the work being done to ban them through Physicians