

[Four of the authors respond:]

David Massel has identified an error in our paper¹ regarding the proportion of patients with high-risk INR values. Forty-nine percent of the patients receiving family physician care but only 30% of those managed in oral anticoagulant clinics had one or more INR values that were either less than 1.5 or greater than 5.0 (absolute difference -19%, 95% confidence interval -31% to -6.0%, $p = 0.005$). Patient satisfaction questionnaires were compared by means of nonparametric techniques, and all satisfaction measures significantly favoured management in an oral anticoagulant clinic.

For the primary outcome measure in our study, we compared the proportion of time that patients were within 0.2 units of the target INR range. We felt that this expanded range was clinically more relevant and allowed us to account for minor INR variations that would not be expected to trigger a change in warfarin dose or put a patient at increased risk of adverse outcomes. However, we also reported the proportion of time spent within the actual target INR range as a secondary outcome. This analysis reaffirmed the high quality of INR management in both the oral anticoagulant clinic and family physician arms of the study; in both arms the proportions of time spent in the target INR range were remarkably similar to those reported by David Fitzmaurice and his colleagues,² who used computerized decision-support software. The higher frequency of INR tests in our study (than the values reported by Fitzmaurice and colleagues²) probably relates to the fact that most participants in our study were newly started on oral anticoagulants, rather than stable patients on long-term anticoagulant therapy.

With regard to Patrick Potter's specific questions, we did not collect information regarding the mechanism for INR management in family physicians'

offices, nor was a formal cost analysis performed.

We concur with Garey Mazowita's comments, but our conclusions regarding the policy implications of our study differ from those of Massel and Fitzmaurice. Although specialized oral anticoagulant clinics provided statistically significantly better INR management than family physicians, the difference was modest, less than the minimally clinically important difference designated for our study, and the quality of care provided in both arms was very high. Whether the educational session and stabilizing of oral anticoagulant dosing in specialized clinics influenced the quality of INR management after randomization is uncertain. Our results contrast with those of previous uncontrolled trials demonstrating that specialized oral anticoagulant clinics resulted in substantively better INR management and improved patient outcomes.^{3,4} Further research is required to determine if the differences in INR management between the 2 groups in our study would translate into clinically important outcomes. In the interim, decisions about which model of oral anticoagulation care is preferable in an individual centre may depend more upon local factors than upon definitive scientific evidence.

David R. Anderson

Department of Medicine

S. Jo-Anne Wilson

Department of Pharmacy

Capital Health and Dalhousie University

Halifax, NS

Michael J. Kovacs

Department of Medicine

University of Western Ontario

London, Ont.

Philip S. Wells

Department of Medicine

University of Ottawa

Ottawa, Ont.

References

1. Wilson SJA, Wells PS, Kovacs MJ, Lewis GM, Martin J, Burton E, et al. Comparing the quality of oral anticoagulant management by anticoagulation clinics and by family physicians: a randomized controlled trial. *CMAJ* 2003;169(4):293-8.

domized controlled trial. *CMAJ* 2003;169(4):293-8.

2. Fitzmaurice DA, Hobbs FDR, Murray ET, Holder RL, Allan TF, Rose PE. Oral anticoagulation management in primary care with the use of computerized decision support and near-patient testing. Randomized, controlled trial. *Arch Intern Med* 2000;160:2343-8.
3. Garabedian-Ruffalo SM, Gray DR, Sax MJ, Ruffalo RL. Retrospective evaluation of a pharmacist-managed warfarin anticoagulation clinic. *Am J Hosp Pharm* 1985;42:304-8.
4. Chiquette E, Amato MG, Bussey HI. Comparison of an anticoagulation clinic with usual medical care: anticoagulation control, patient outcomes, and health care costs. *Arch Intern Med* 1998;158:1641-7.

Competing interests: None declared.

Correction

In an article about the quality of oral anticoagulant management by anticoagulation clinics and by family physicians¹ the proportion of patients with high-risk values for international normalized ratio in the family physician group was reported incorrectly. On page 295, column 2, line 18, and in Table 2, row 2, the proportion should be 49% (rather than 40%). The corresponding 95% confidence interval (39% to 59%) was reported correctly.

Reference

1. Wilson SJA, Wells PS, Kovacs MJ, Lewis GM, Martin J, Burton E, et al. Comparing the quality of oral anticoagulant management by anticoagulation clinics and by family physicians: a randomized controlled trial. *CMAJ* 2003;169(4):293-8.