Reply and Corrections:

I would like to thank Mr Filiatrault and Mr Zaremba for their letter, which highlights many of the issues in the controversy surrounding the trials of low-molecular-weight heparins in acute coronary syndromes. The recently published meta-analysis by Eikelboom and others[1] provides an excellent discussion of this topic and a detailed analysis of the individual issues. Eikelboom and others[1] point out that the available evidence does not definitively favour enoxaparin over unfractionated heparin. Such evidence could be obtained only through a trial comparing the various low-molecular-weight heparins with unfractionated heparin in the same research setting, but a trial of this kind is unlikely to be undertaken.

I would also like to take this opportunity to advise readers that the following changes are needed to my original article on low-molecular-weight heparins in the treatment of acute coronary syndromes.[2]

First, the anticoagulant effects of low-molecular-weight heparins can be partially reversed by protamine.[3] Readers should consult individual product monographs for directions on how to accomplish this intervention, should reversal be required.

Second, a correction is needed to the discussion of the FRagmin and Fast Revascularisation during InStability in Coronary artery disease trial (FRISC II).[4] In my article, both Table 3 and the text indicate that 1049 patients were initially given "dalteparin 120 U/kg SC bid for at least 5 days, and 1056 patients received unfractionated heparin adjusted for activated partial thromboplastin time. The patients who had received dalteparin were then randomly assigned into a double-blind extended trial to receive a fixed dose of dalteparin or placebo for 3 months, on the basis of weight and sex."

In fact, patients were initially treated with either SC dalteparin or unfractioned heparin until 72 h. They were then given dalteparin 120 U/kg SC every 12 h (maximum dose 10 000 U) for at least 5 days. Patients were then randomly assigned to receive either dalteparin SC injections (1049 patients) or placebo injections (1056 patients) twice daily for a total of 3 months. Throughout the trial, the patients received a maintenance dose of acetylsalicylic acid.[4]

I apologize for these erroneous statements in the published article.

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References

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4. FRagmin and Fast Revascularisation during InStability in Coronary artery disease Investigators. Long-term low-molecular-mass heparin in unstable coronary-artery disease: FRISC II prospective randomised multicentre study. *Lancet* 1999;354:701-7.

Impact of Adding a Low-Molecular-Weight Heparin to the Drug Formulary of a Small Hospital

In September 1999 the low-molecular-weight heparin dalteparin was added to the formulary of the Nipawin Hospital, Nipawin, Saskatchewan, for use as an alternative to full-dose unfractionated heparin in the treatment of systemic venous thromboembolism and acute coronary syndrome. At the time, we reviewed the global economic implications of using a low-molecular-weight heparin in our 50-bed hospital and identified one cost that has not been considered in other reviews — the cost to call back laboratory personnel to monitor activated partial thromboplastin time. Our regular laboratory hours are 0730 to 1600, Monday to Friday, and 0700 to 1100 on weekends. Therefore, when initiating therapy with unfractionated heparin, it is only through great coincidence that there is not at least one call-back for staff to perform a test for activated partial thromboplastin time. The average cost in our facility for a laboratory call-back is about $65.

For the treatment of venous thromboembolism, we felt that using a low-molecular-weight heparin would simplify administration and allow for outpatient treatment in selected patients. We estimated that our cost (including the drug, administration supplies, laboratory work, and call-back for laboratory personnel) to treat one patient with unfractionated heparin for 6 days was approximately $96; with dalteparin the cost would rise by about $26, to $122.

In patients with acute coronary syndrome, we estimated an average treatment duration of 2.5 days with a heparin product. Traditionally, we have administered heparin to patients for about 24 h past their last episode of chest pain; if the chest pain does not resolve within

36 to 48 h, the patient is transferred to a tertiary care centre. The estimated costs per treatment course were $83 with unfractionated heparin and $58 with dalteparin, a saving of about $25 per patient.

We reviewed the charts of patients who had received full-dose unfractionated heparin between January 1 and April 30, 1999, for comparison with patients who had received either unfractionated heparin or low-molecular-weight heparin between January 1 and April 30, 2000. Thirty-eight patients (9 with deep vein thrombosis and 29 with acute coronary syndrome) received full-dose unfractionated heparin in the first 4 months of 1999. During the same period in 2000, 12 patients were treated with unfractionated heparin (3 with deep vein thrombosis and 9 with acute coronary syndrome) and 42 were treated with low-molecular-weight heparin (16 with deep vein thrombosis and 26 with acute coronary syndrome). Total drug costs rose from $279 in 1999 to $4289 in 2000. Laboratory call-backs for testing that included activated partial thromboplastin time along with other tests were about the same (47 in 1999 and 50 in 2000), but call-backs for activated partial thromboplastin time only decreased from 44 in 1999 to 11 in 2000, an estimated saving of $2145. On 48 of the 94 treatment days for deep vein thrombosis, treatment was administered at home, in our outpatient department, or in an outlying health centre.

Whereas we expected no effect or a slight decrease in our global costs with the addition of a low-molecular-weight heparin to formulary, we have instead experienced an increase of approximately $2000 for a 4-month period. What has happened? The number of patients being treated is higher. Some of these extra patients can be attributed to "soft" indications. For example, because of its ease of administration, some patients have received the low-molecular-weight heparin while awaiting diagnostic evaluation of venous thromboembolism, whereas in the past such patients would not have received intravenous unfractionated heparin. The treatment duration for acute coronary syndrome is also longer than expected. Nurses have reported that they are less likely to suggest discontinuation of the low-molecular-weight heparin because it is so easy to administer. In addition, physicians do not see the IV bag connected to the patient's arm during morning rounds and do not have to respond to laboratory reports of activated partial thromboplastin time. Also, there is a tendency among the physicians to believe that the low-molecular-weight heparin is safer than unfractionated heparin, which shifts the risk–benefit ratio in their minds.

The addition of dalteparin to the formulary of a small hospital has, as expected, decreased the average length of stay for treatment of venous thromboembolism, decreased the number of call-backs for laboratory personnel, and simplified drug administration for nurses and patients. However, it has led to an unforeseen increase in global costs at our facility.

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Evaluation of a Discharge Medication Information Pamphlet

The term "seamless care" has earned its rightful place in pharmacy literature on the basis that increased morbidity and mortality rates and higher health-care costs are all negative consequences associated with lack of communication among health-care professionals.[1,2] According to the CSHP Direct Patient Care Curriculum, Module 4, seamless care "is the desirable continuity of care delivered to a patient in the health-care system across the spectrum of caregivers and their environments. Pharmacy care is carried out without interruption, such that when one pharmacist ceases to be responsible for the patient's care, another pharmacist or health-care professional accepts responsibility".

Most of the literature concerning pharmaceutical seamless care focuses on the transfer of information between hospital and community pharmacists.[3,4] The Cross Cancer Institute in Edmonton, Alberta, implemented a pilot project to assess whether or not a discharge medication information pamphlet could help to facilitate a seamless transition for patients returning home. The objectives of the pilot project were to evaluate the attitudes of patients who received the information pamphlet and compare these attitudes with those of patients who did not receive the pamphlet; to evaluate the attitudes of community pharmacists who saw the information pamphlet and compare them with those of pharmacists who did not see the pamphlet; and to measure the workload associated with implementing such a service. In addition to investigating the logistics involved in transferring information from hospital to community pharmacists for oncology patients, the pilot project also explored such issues as patients' understanding of their discharge medications as well as patients' willingness to share such information with their community pharmacists.