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.

In the first phase of the pilot project, regular procedures were followed and baseline data were collected. The discharge medication information pamphlet was distributed in the second phase. The sections of the pamphlet covering generic name, dosage, and reason for medication were completed at the Cross Cancer Institute. Brand name, strength dispensed, and the medication schedule were to be filled out by the community pharmacist or the patient. Follow-up surveys evaluating patients' understanding of and pharmacists' satisfaction with the information received were conducted by telephone 2 days after discharge in both phases of the project.

Participants were asked to respond to the survey questions using a 5-point scale, and some of the results are presented in Table 1. A total of 86 patients participated in the pilot project, 40 during the baseline phase and 46 during the pamphlet distribution phase.

The discharge medication information pamphlet was an effective tool that facilitated seamless care within an oncology patient population. However, several barriers exist to implementing such a service, time being the most restrictive factor. On average, 15 min was required to complete the discharge medication information pamphlet, but more time was required if changes were still needed to discharge orders, if the chart had been misplaced, if physicians and nurses were not available to answer questions, or if the patient was not available. The importance of working with other health-care professionals to make the most efficient use of pharmacy time and resources became evident during the pilot project. The discharge nurse on the unit was notified of the project, and she acted as a direct liaison on behalf of the unit in informing the pharmacy department of potential discharges. This eliminated the need to attend discharge rounds and minimized the number of patients who left the hospital without any interaction with the pharmacy. Furthermore, fostering such relationships created a niche for pharmacy services, and the discharge nurse came to rely on the distribution of the discharge medication information pamphlet because of her own time limitations.

Understanding and satisfaction scores were higher for patients who received the information pamphlet than for those who did not (Table 1). Pharmacists also gave a positive evaluation of the information pamphlet (Table 1). Although the discharge medication information pamphlet was an effective tool for transferring information, 17 (37%) of the study group did not share the pamphlet with their dispensing pharmacist. The most common reason cited was the patient's lack of comfort in sharing personal information such as diagnosis. Forgetfulness and satisfaction with the amount of information already received were other reasons.

Several such forms and pamphlets have been published to allow the uninterrupted transfer of information between hospital and community.[3–5] Although the discharge medication information pamphlet was effective, the feasibility of full implementation is still in question because of some of the barriers discussed above. In addition, the pilot project did not allow for any long-term follow-up to determine the type of care provided after patients were back in the community. Further studies to look at the type of long-term follow-

Table 1. Results of Telephone Survey about Discharge Medication Information Pamphlet (DMIP)*

Question	Mean score†	
	Baseline	DMIP Phase
Patient survey		
No. of patients who completed the survey	40	46
Were there any issues in getting your prescription filled?	1.6	1.3
Did anyone explain how to take your medications?	3.6	3.8
Do you understand why you are taking your medications?	3.9	4.2
Do you feel you have received enough information about your medications?	3.9	4.3
Was any additional information added to the DMIP?	ND	1.5
Did you find the DMIP useful?	ND	4.3
Pharmacist survey		
No. of pharmacists who completed the survey	30	28
Did you have any issues filling the prescription?	1.9	1.3
Did you find the DMIP useful?	ND	4.4

ND = no data.

* Each question had 5 possible scores: 1 = not at all, 2 = a little bit, 3 = somewhat, 4 = quite a bit, 5 = very much.

† Except where indicated otherwise.

up and monitoring feasible from a community standpoint are needed, as well as studies examining the knowledge level of community pharmacists in the area of oncology. The data from such studies may be useful in designing a tool that allows for optimal delivery of care to oncology patients after discharge from hospital into the community.

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References

1. Cameron B. The impact of pharmacy discharge planning on continuity of care. *Can J Hosp Pharm* 1994;47:101-9.
2. Oborne CA, Dodds LJ. The quality and quantity of drug-related information provided to hospital inpatients and its effects on seamless care. *Pharm J* 1993;251(Suppl):R5.
3. Kmet C. Evaluation of a seamless care discharge summary sheet to enhance continuity of pharmacy care. *Hosp Pharm Issues* 1998;10:1-8.
4. Cole DL, Slayter KL. Evaluation by patients and pharmacists of a summary form for seamless pharmaceutical care. *Can J Hosp Pharm* 1999;52:162-6.
5. Sandler DA, Heaton C, Garner ST, Mitchell JRA. Patients' and general practitioners' satisfaction with information given on discharge from hospital: audit of a new information card. *BMJ* 1998;299:1511-3.

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