

The Impact of Pharmacy Discharge Planning on Continuity of Care

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ABSTRACT

Maintaining high quality patient care following hospital discharge is essential for complete recovery and continued well-being. Historically, pharmacist participation in discharge planning has been minimal and has been frequently limited to last minute patient counselling. Hospital pharmacists can contribute to the continuity of patient care by summarizing changes made to a patient's therapy, their rationale, and future considerations in a discharge report to the family physician and/or community pharmacist.

In this study, pharmacy discharge summaries were prepared for inclusion in the discharge report to the family physician. Summaries were also forwarded to the community pharmacist, where appropriate. Two types of pharmacy summaries completed were "Rationale for Inpatient Changes" (RIC) and "Recommendations for Future Changes" (RFC) summaries. Evaluation forms accompanying the summaries elicited very favourable responses. An independent review group of two physicians and two pharmacists rated the potential for reduction of patient mortality/morbidity as either marked, modest, minor or negligible; most of the summaries were evaluated as having a "modest" impact. Workload associated with preparation of pharmacy summaries would require additional pharmacy staff. Direct and indirect cost savings, including decreased drug costs and avoidance of drug complications and hospital readmissions, are associated with this service.

Key words: discharge planning, pharmacy

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RÉSUMÉ

Des soins de première qualité après le congé de l'hôpital sont essentiels à un rétablissement complet et au bien-être du patient. Le pharmacien n'a jamais beaucoup participé à la planification du congé. Sa participation se limitait fréquemment à des conseils de dernière minute au patient. Les pharmaciens d'hôpitaux peuvent concourir à la continuité des soins en résumant les changements apportés à la thérapie du malade, en expliquant la raison des changements et en signalant les aspects à surveiller subséquent dans un rapport qui sera communiqué au médecin de famille et/ou au pharmacien communautaire.

Dans la présente étude, des résumés de ce genre ont été rédigés en vue d'être annexés au rapport final destiné à l'omnipraticien. On a préparé deux sortes de sommaire pharmaceutique: le premier expliquant les modifications apportées au traitement et le second formulant des recommandations pour les changements subséquents. Le formulaire d'évaluation accompagnant ces documents a donné lieu à des réactions très enthousiastes. Un comité indépendant composé de deux médecins et de deux pharmaciens a évalué les possibilités de réduction du taux de mortalité ou de morbidité du patient (importantes, modestes, mineures ou négligeables). Dans la plupart des cas, on a attribué la cote «modeste» au résumé. La charge de travail associée à la rédaction des résumés exigerait une augmentation du personnel de la pharmacie. Ce service entraînerait des économies directes et indirectes, notamment une réduction du coût des médicaments et l'élimination de certaines complications pharmaceutiques et, réadmissions à l'hôpital.

Mots clés: pharmacie, planification du congé

INTRODUCTION

"Continuity of Care is the desired end product of the discharge process, which enables clients to maximize their potential for wellness in a dignified manner while minimizing discomfort and stress."¹

The process of discharge planning

and its goal of continuity of patient care are not new concepts. Around the late 1960s, it was widely recognized that hospitals and their staff were often used for care that could have been provided in the community. At the same time, it was suggested that the high costs

associated with in-patient treatment could be reduced by treatment in the home and community setting. Social workers and nursing staff emerged as the key players in the discharge planning process. While the nursing/social worker team approach to discharge planning

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has its merits, the literature consistently emphasized the need for collaboration among the multidisciplinary team members. The level of involvement of these health care professionals in the discharge planning process has been variable. Historically, pharmacist participation has been minimal and, been frequently limited to last minute discharge patient counselling.

As part of the total patient care provided by the pharmacist, the importance of effective patient counselling cannot be over-emphasized. Patients on new or changed medications need counselling and may require medication calendars, tapering schedules, and administration instruction. This is of particular concern in the elderly who are frequently prescribed multiple medications with complicated dosing schedules. Multiple drug therapy has been linked to an increased incidence of improper drug administration, drug interactions, and adverse drug reactions.^{2,3} It has been estimated that up to 20% of hospital admissions for elderly patients are related to adverse effects of their drugs.⁴ The end result is increased morbidity and mortality, and higher health care costs.

Due to the concern regarding health care costs and shrinking budgets, provincial governments are looking for effective ways to improve health care delivery. The Nova Scotia government in its report "Health Strategy for the Nineties" indicates a concern about inappropriate utilization of prescription and non-prescription drugs and the corresponding increases in expenditures for both seniors and community service Pharmacare. Included in the recommendations of the report was the goal of achieving "a better

balance between the curative and preventative components of the health care system".⁵

The role of the hospital pharmacist has expanded beyond product-centered drug distribution to include more patient-centered activities on the nursing unit. The presence of a pharmacist on the nursing unit facilitates direct contact with health care professionals and the patients. One-on-one contact allows pharmacists to act proactively rather than reactively.

Pharmacist intervention in patient drug therapy while in hospital has recently been well-described in the literature.^{6,7,8,9} Often patients are admitted on medication that is deemed inappropriate by medical and pharmacy staff. As well, physicians from specialized areas are often reluctant to make changes to patient medications not within the realm of their specialty. For example, an ophthalmologist may not feel comfortable about discontinuing or replacing antihypertensive medications while a patient is in hospital for cataract surgery.

Hospital pharmacists have often discovered that, after having been actively involved in improving an inpatient's drug therapy, the family physician has reinstated the previous drug regimen following hospital discharge. This can be a counterproductive practice, undermining the potential beneficial changes already made to the patient's therapy. Hospital pharmacists may be able to influence family physicians' prescribing habits by clearly summarizing the pharmacotherapeutic changes initiated while in hospital. Included in a pharmacy discharge summary would be the rationale for the therapeutic changes, details about patient counselling that may have taken place, and any recommendations concerning potential problems with the medication.

The lack of communication which exists between hospital and community pharmacists should also be addressed, as it can potentially undermine continuity of patient care. The community pharmacist is often unaware of specific patient information, such as the diagnosis or therapeutic rationale while hospital pharmacists are able to access patient information through central computers and patients' charts. Hospital pharmacists could bridge the gap between hospital and community by providing this information when appropriate. Taking steps to clarify the rationale behind medication regimens with atypical dosages, dosing frequencies or therapeutic indications enables the community pharmacist to better serve patients. Provision of this information could decrease the delay associated with contacting the family physician for clarification and permit more effective patient counselling.

A copy of the pharmacy discharge summary prepared for the family physician could be sent to the community pharmacist. The hospital pharmacist could also include pharmacy-specific concerns for the community pharmacist. The community pharmacist frequently sees the patients more often than the family physician and is in an excellent position to help monitor the patient's progress.

The goal of this study was to establish a role for pharmacists in discharge planning that would contribute to improved continuity of care. Its objectives were to determine the extent to which pharmacy could be involved in discharge planning; to design a means of communication between the hospital pharmacist and the family physician and between hospital and community pharmacists; to explore the potential impact of pharmacy input in discharge

planning on continuity of patient care through review of the nature of the interventions made; and to assess the usefulness of the pharmacist's contribution to discharge planning as perceived by the family physician and community pharmacist.

METHODS

The study took place during a six-week period in March/April, 1992. A combined 35-bed, surgical/medical nursing unit was selected as a base to initiate the program. Referrals were also encouraged and accepted from pharmacists in other patient-care areas. A method for documenting pharmacy recommendations on the discharge papers to the family physician was developed.

Pharmacy summaries were written for patients who were, or should have been, discharged on medications significantly different from those in use prior to admission. The medication interventions made during the patient's stay and/or recommendations for changes were summarized in the discharge papers forwarded to the family physician. Attached was a letter of introduction which described the study and an evaluation form which allowed the family physician to appraise the content and usefulness of the pharmacy summary.

Where appropriate, a copy of the pharmacy summary was also delivered to the community pharmacist. Discharge prescriptions were verified. Patients were counselled about their medications and supplied with the appropriate calendars and tapering schedules. The discharge prescriptions, pharmacy summary, a letter of introduction, and an evaluation form for the community pharmacist were placed in an envelope to be delivered as a package. The additional workload associated with pharmacy activities of this type was estimated.

The information summarized on

the discharge papers was documented and categorized according to potential management outcomes. The results of the evaluation forms sent to family physicians and community pharmacists were reviewed and interpreted. An external review group consisting of two physicians and two pharmacists was established to examine the process of preparing pharmacy summaries and to rate the impact of these summaries on patient outcome. The rating system is described in Appendix A.

RESULTS

During the six-week period, a total of 22 pharmacy summaries for 16 patients were completed by the investigator and sent to family physicians and/or community pharmacists (Table I). Referrals from pharmacists on patient care areas other than the base nursing unit accounted for 13 of the summaries. Two types of pharmacy summaries were written. The Rationale for Inpatient Changes (RIC) Summary outlined the changes made to the patient's therapy while in hospital and the rationale for these changes. An introductory sentence prefaced the summary. For example: "Some changes have been made to Mr. X's drug therapy while in hospital." The "Medications on Admission" were listed in a column on one side while the "Medications on Discharge" were listed opposite this column. The drug changes made were

highlighted. "Reasons for Changes" appeared below the lists and addressed those changes, either by individual drug or drug category. Where applicable, "Future Recommendations" followed. This included alteration in a drug or dosage form that should be considered in the future, but which was not initiated while the patient was in hospital.

The Recommendations for Future Changes (RFC) Summary was completed when problems were identified with a patient's drug therapy but where changes were not initiated during hospitalization. This situation occurred on specialized nursing units where physicians were reluctant to make changes to a patient's therapy not within their realm of specialty. Frequently, referrals to general medicine specialists took place during the hospital stay. Pharmacy summaries were written (with agreement in principle by medical staff) and forwarded to the patient's family physician. The information within the RFC summary was structured as follows: an introductory sentence, for example: "I have some concerns about Mr. X's drug therapy"; the problem(s) were listed briefly, and recommendations or suggestions corresponding to each problem identified were made.

All patient counselling conducted and medication calendars or tapering schedules provided to the patient were documented at the end of each pharmacy summary. Both types of

TABLE I: Types and numbers of summaries prepared

Type of Summary	Community Pharmacist (#)	Family Physician (#)	Community Pharmacist and Family Physician (#)	Total (#)
Rationale for Inpatient Changes	3	2	12	17
Recommendations for Future Changes	0	5	0	5
TOTALS	3	7	12	22

summaries were forwarded with the discharge report to the family physician. Community pharmacists received only the RIC summary.

The time required to complete pharmacy summaries, prepare calendars and schedules, counsel patients, and contact community pharmacists and/or family phys-

icians was recorded (Table II).

The information documented in the pharmacy summaries was categorized according to the potential outcomes to the patient. These included: cost-saving potential; adverse drug reaction avoidance; and changes in dosage, dosing frequency, duration of treatment and the choice of treatment.

Each pharmacy summary was reviewed by the investigator to anticipate the potential outcome of each change or recommendation made. The evaluation form completed by the patient's family physician indicated whether or not the changes or recommendations would be implemented.

Table III outlines the types of

TABLE II: Workload measurement

SUMMARY RECIPIENT	AVERAGE TIME REQUIRED FOR ACTIVITIES ASSOCIATED WITH SUMMARY PREPARATION (min)					
	AVERAGE TIME TO COMPLETE SUMMARY (Min)	Patient Counselling	Preparation of Medication Calendars/Schedules	Assembling and Copying Literature	TOTAL AVERAGE TIME (min)	
					Mailed Summaries	Delivered Summaries
Community Pharmacist n = 3 (RIC Summary)	45	16	22	—	—	83
Family Physician RIC n = 2	50	—	—	—	—	50
RFC n = 5	141	25 (1/5)	15 (1/5)	12.5 (3/5)	205	125
Community Pharmacist and Family Physician n = 6 (12 RIC summaries in total)	91	23 (5/6)	30 (4/6)	15 (1/6)	143	128

RIC = Rationale for Inpatient Changes Summary

RFC = Recommendations for Future Changes Summary

TABLE III: Prediction of management outcome

Outcome Predictor	DOSAGE CHANGES		Duration of Treatment	Choice of Treatment	COST SAVINGS		Adverse Drug Reaction Avoidance
	Frequency	Dose (> or <)			Direct	Indirect	
Investigator	5	2	2	13	3	13 (all)	10
Family Physician n = 9 patients							
Positive Response	5	4	3	5	2		4
Negative Response	1			2			1

Positive Response = Family physician intends to follow recommendations

Negative Response = Family physician does not plan to follow recommendations

information documented in the pharmacy summary and includes the number of predicted positive outcomes corresponding to each category.

The external review group's evaluation of the process associated with preparing summaries is presented in Table IV.

An evaluation form was received from seven of nine community pharmacists (Table V).

The two outstanding evaluations were not followed-up because it was difficult to determine which pharmacy the patient patronized.

Nine of the 13 evaluation forms sent to family physicians were completed and returned. The results of Part I of the Evaluation Form to the Family Physician are shown in Table VI. The results of Part II have been incorporated into Table III.

DISCUSSION

Previous in-house residency projects provided a basis for this project. These included the investigation of the impact of pharmacist-initiated interventions on patient care, a multidisciplinary approach to patient counselling, and a study of the impact of pharmacy interventions on discharge medication orders. Pharmacist involvement in the discharge planning process could be viewed as the next stage in this progression of patient care. Originally, the focus of this project was to document the therapeutic drug changes or recommendations made in hospital on the discharge report to the family physicians. A copy of this pharmacy summary was to be sent to the community pharmacist.

The investigator made numerous drug interventions to patients' drug regimens while in hospital. This required communication with the patients, nursing and medical staff, and sometimes other health professionals such as physio-

TABLE IV: Anticipated outcome to patient: external review group^a evaluation of pharmacy summaries^b

Impact of Outcome	OUTCOME PREDICTOR			
	Chief of Emergency Department	Chair of Medical Quality Assurance	Assistant Professor, College of Pharmacy	Manager Clinical Services Pharmacy
Marked	2	2	0	4
Modest	10	6	9	8
Minor	1	4	4	1
No Probable Impact	0	1	0	0

^a External Review Group = 2 physicians and 2 pharmacists

^b n = 13

TABLE V: Results of evaluation form completed by community pharmacists

PART I

	Necessary	Beneficial	No Opinion	Somewhat Useful	Not Helpful
In understanding the rationale for the drug therapy modifications made during this patient's in hospital stay, I found this information	1	6	—	—	
As a community pharmacist, I find this summary of therapeutic changes	1	6	—		
The pharmacy summary provided drug information that was (check as many as applicable)	New -	Enlightening 6	Interesting 2	Redundant —	Reinforcing 1

PART II

In your opinion, without this information, the following problems might have developed:	YES	NO	N/A
No anticipated problems with my patient's therapy.	2	4	1
Time delays (e.g., associated with contacting physician)	4	3	
Patient confusion (e.g., in knowing which medication to discontinue)	6	1	
Inappropriate patient counselling (e.g., due to pharmacist's ignorance of patient's diagnosis)	4	3	1

therapists or dieticians. The pharmacy summary was written and appropriate letters of introduction, evaluation forms, and additional literature were attached. Medication calendars and tapering schedules were prepared. The discharge prescriptions were then verified. It was essential that the discharge prescriptions be accurate, appropriate and match the medications outlined on the pharmacy summaries, medication calendars and tapering schedules. Inconsistencies could have resulted in patient confusion and misinformation to the community pharmacist or family physician. Any discrepancies were resolved by contacting the medical house-staff directly.

The patients received counseling about their medications, and were informed about the nature and purpose of the project. The transfer of written patient information from a hospital pharmacist to a community pharmacist raised the issue of patient confidentiality. Where patients delivered this information to their community pharmacist, tacit consent was implied by their cooperation. Patients were contacted by phone for permission prior to mailing pharmacy summaries to the community pharmacists.

Seven of the 22 pharmacy summaries prepared were mailed to the community pharmacist or family physician rather than delivered by the patients when the discharge took place earlier than expected, or when insufficient notice of the discharge was given. Two of the five RFC summaries were mailed to family physicians because there was insufficient time to implement new drug therapy before the patient was discharged.

Mailed pharmacy summaries may not provide the same degree

of continuity of patient care as the patient-delivered summaries. Patients receive more effective patient counselling in person by the hospital pharmacist as opposed to over the telephone. Discharge prescriptions could not be verified for summaries that were mailed. In general, the process associated with mailed pharmacy summaries was not as organized and thorough as the process associated with patient-delivered summaries. Insufficient notice of the pending discharge was the major barrier to having all pharmacy summaries patient-delivered.

Preparation of pharmacy summaries required effective communication with three key players — nursing staff, medical/attending staff and, particularly, the patient.

Direct contact with patients was often the best approach to drug therapy problem solving. Patients were generally the best source of thorough drug history information. If patients were uncertain about their medications, their relatives or community pharmacists were contacted. It was essential to investigate previous drug therapy, determine its effectiveness, and identify treatment problems encountered before a change in therapy could be recommended. Failure to do so could result in inappropriate recommendations.

Nursing staff provided supplementary information about the patient's ability to understand instructions, the presence of visual, hearing or other physical limitations, as well as any day-to-day changes in their general condition.

Direct, one-on-one contact was the most efficient and effective means of communication with the medical staff. Conversations with medical staff occurred either in

person on the nursing unit or by pager/telephone to establish a meeting place where a patient's drug therapy could be reviewed.

Complex recommendations for in-hospital changes were summarized in the progress notes of the medical chart. The problems were identified, briefly discussed, and suggestions for an alternative therapy were provided. Physicians followed the recommendations most often when the information was specific concerning the drugs, dosages and dosing frequencies.

The majority of the patients who received a pharmacy summary were identified by the investigator and other pharmacists. A small number of referrals were received from nursing and medical staff. No specific criteria were established to identify which patients should receive a pharmacy summary. Patient selection should evolve as part of a "pharmacy care plan" which allows a pharmacist to identify patient-specific, drug-related problems; assess the patient's present drug therapy; formulate a plan of action, and monitor the patient's progress.

Large variances were observed in the workload associated with the preparation of pharmacy summaries. The length of time required was dependent on the type of summary written (i.e., RIC vs RFC); the recipient of the summary (i.e., family physician or community pharmacist); and whether the summary was to be delivered by the patient or mailed.

Generally, RIC summaries required less time to complete than RFC summaries. Additional time was expended in the preparation of the RFC summaries due to the research into the patient's medical history and therapeutic alternatives required.

The workload involved in writing pharmacy summaries was

generally greater for summaries directed to family physicians than those intended for community pharmacists. The community pharmacist frequently received merely a copy of the summary already sent to the family physician. The purpose of the summary sent only to the community pharmacist was to explain the drug therapy changes made and to facilitate follow-up, whereas the summary sent to the physician was intended to substantiate and reinforce these changes. Frequently, summaries (particularly RFCs) were also meant to be persuasive and often required additional research and supporting literature.

The attending staff or medical housestaff often reviewed the pharmacy summaries before they were forwarded to the patient's family physician. The purpose was not only to have pharmacy recommendations evaluated by medical staff, but also to provide additional credence to the suggestions made. For example, if a summary recommended a very slow tapering regimen for prednisone, the family physician may be more likely to accept a suggestion made by the investigator followed by "Dr. X (respirologist) recommends a slow tapering regimen due to Mr. Y's long-term prednisone therapy."

Pharmacy summaries that were

mailed required more time to prepare than those delivered by the patient (Table II). Completing summaries retrospectively from discharged patients' charts required additional time. In addition, it was sometimes difficult to locate the attending housestaff and their recall of the changes made was not always clear.

The pharmacists' response to Part I of the evaluation form (Table V) were extremely positive. Only two of the pharmacists indicated they would not have encountered problems without a pharmacy summary from a hospital pharmacist. However, both of these pharmacists indicated they had been knowledgeable about their patients' past medication history.

Having access to information contained in the summary, a community pharmacist is able to update the patient's drug profile, counsel the patient appropriately about their new medications, and reinforce the information already given to the patient by hospital pharmacy and medical staff. Patients would be more certain about which medications are current and which medications are to be discontinued.

The community pharmacist is better able to monitor the patient's progress when he/she is aware of the patient's condition and

previous drug therapy. Comments included on the evaluation forms indicated that the pharmacists were appreciative of the pharmacy summaries and would like to see the practice continued.

The majority of the family physicians who completed the evaluation forms responded favourably to Part I (Table VI). Most physicians indicated that the pharmacy summaries contained useful drug information. All but two of the physicians planned to follow the recommendations outlined in the summary. The entire group of physicians, including those who said they were not planning to follow the recommendations, indicated they would like to receive pharmacy summaries in the future.

The results of the evaluation forms completed by the family physicians and summarized in Table III indicate that the response to the recommendations and/or changes made was very positive. The investigator predicted positive outcomes for all 13 patients whose family physicians received a pharmacy summary. The physician response reflects only the nine evaluation forms that were returned.

An external review group studied the content of the pharmacy summaries and their corresponding evaluation forms to project their overall impact on the

TABLE VI: Results of evaluation form completed by family physicians

	YES	No	N/A
1. The information explained why the drug therapy was modified.	9		
2. This information may influence the SHORT-term management of my patient.	7	2	
3. This information may influence the LONG-term management of my patient.	7	2	
4. The pharmacy summary provided useful drug information.	8	1	
5. I plan to follow the recommendations outlined in the pharmacy summary.	6	1	2
6. I would like to receive pharmacy summaries in the future.	9		

patients' outcomes. The reviewers took into consideration the pharmacy-initiated interventions, the content of the pharmacy summaries themselves, the provision of educational material, and any patient counselling that took place when attempting to determine the impact on patient outcome. At least 80% of the pharmacy summaries assessed may potentially reduce patient morbidity or may result in a significant change in the patients' clinical courses.

Both direct and indirect cost savings to the health care system are associated with the changes or recommendations made to patients' drug regimens. Further study of this impact is warranted.

The workload associated with the process of preparing pharmacy summaries can be significant (Table II and III). Considering the demand associated with the preparation of an RFC summary, it may not be feasible for pharmacists to routinely complete this type of summary. An estimate of the pharmacy staff required to undertake such a program is outlined in Table VII.

This study involved the expansion of a pharmacist's clinical role to include an active

role in discharge planning. The process associated with the preparation of pharmacy discharge summaries includes pharmacy-initiated interventions, verifying discharge prescriptions and patient counselling, as well as documenting these changes and recommendations on the discharge report to the family physician. Together, these components contribute to improved continuity of patient care. The information contained in the pharmacy summaries represents a vehicle for communication between the hospital pharmacist and family physician and between hospital and community pharmacists.

Family physician and community pharmacist response to the pharmacy summaries was highly positive, as was the external review group's assessment of pharmacy input in discharge planning.

The workload associated with the preparation of pharmacy summaries may determine the extent to which pharmacy can be involved in discharge planning. However, the cost of additional staffing should be balanced against gains related to improved patient care and subsequent cost savings to the health care system as a whole. ☐

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TABLE VII: Estimate of staffing requirement for discharge planning activities

Estimated Summaries per week	Annual Hours ^(a) Associated with Completion of Pharmacy Summaries ^(b)		F.T.E. Requirement ^(e)	
	RIC ^(c) (h)	RFC ^(d) (h)	Requirement ^(e)	
			RIC	RFC
5	360	715	0.28	0.55
10	720	1,430	0.55	1.10

(a) Average time/summary (h) X summaries/week X 52 weeks

(b) Includes assembly and copying of literature, preparation of medication calendars and tapering schedules and counselling of patients.

(c) Rationale for Inpatient Changes; average = 83 minutes

(d) Recommendations for Future Changes; average = 165 minutes

(e) F.T.E. = 1,300 productive hours

APPENDIX A

Patient Outcome Ratings by External Review Group

Marked Impact

An intervention with a marked impact has a high probability for averting patient morbidity and/or mortality. The intervention contributes strongly to the avoidance of a critical deleterious effect on the patient's clinical course. These interventions may involve life-sustaining medications or those with a narrow therapeutic index.

Modest Impact

An intervention with a modest impact may reduce the potential for patient morbidity or may result in a significant change in a patient's clinical course.

Minor Impact

An intervention with a minor impact may have some effect on the patient's clinical course. The intervention may influence the patient's quality of care, but the impact on patient outcome is considered to be minimal.

No Probable Impact

An intervention with "no probable impact" will have a negligible effect on the patient's clinical course.
