
PHARMACY PRACTICE



The Transition to Pharmaceutical Care on a Geriatric Unit in a Community Hospital

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INTRODUCTION

The provision of patient-oriented (clinical) pharmacy services is well established in many North American institutions. The White Paper produced by the Clinical Pharmacy Advisory Committee of the Canadian Society of Hospital Pharmacists defined clinical pharmacy as the practice of "(a) ensuring that the correct patient receives the most appropriate medication and dose, for a specific condition with an appropriate dosage form, regimen and duration; (b) assisting in the prevention, identification and resolution of untoward effects from these drugs and their interactions; and (c) educating patients with regard to drugs with the intention of limiting these untoward effects and improving compliance."¹ It focuses on a list of clinical activities such as patient pharmacotherapy monitoring (PPM), pharmacokinetic monitoring, medication counselling, and provision of drug information. Pharmacists usually concentrate more on the drugs and services that they presume as beneficial to the patients rather than considering individual patient needs and wishes.

In the past few years, the provision of Pharmaceutical Care (PC) has been advocated as one of the top priorities for our profession. Hepler

and Strand² defined Pharmaceutical Care as "the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life." The process involves assessing the patient's needs, identifying actual or potential drug-related problems, and working with the interdisciplinary team, the patient, and his/her family to design, implement and monitor a therapeutic plan that will solve or prevent drug-related problem(s). PC expands the traditional role for the provision of clinical pharmacy services such as PPM by focusing more on the needs, and if possible, preference of the patient, and assuming responsibility for the patient's pharmacotherapeutic outcome.

In these days of budget restriction, a pharmacist often has to provide more patient care with less allotted time. However, time constraints should not prevent pharmacists from initiating PC. The objective of this article is to share the experience of a geriatric Transitional Unit pharmacist in a community hospital in the transition to Pharmaceutical Care. This article reflects the pharmacist's practice in:

- initiating pharmaceutical care utilizing the Pharmacist's Management of Drug-Related Problems (PMDRP)³ to a few

patients; and

- providing PPM and clinical pharmacy services to the majority of patients, utilizing the pharmaceutical care principles.

Actual interventions are provided to illustrate how the provision of PC and the incorporation of PC principles in clinical pharmacy practice affected patients' treatment outcome. Suggestions on several practical first steps towards the provision of pharmaceutical care in a community hospital are provided.

Description of Practice

Toronto East General Hospital is a 483-bed acute care community hospital with some teaching affiliations. In 1991, the establishment of a new 26-bed Transitional Unit was proposed to alleviate the problem of medically stable geriatric patients scattered over general medical units who were occupying acute care beds for extended periods while awaiting placement. Representatives from various disciplines such as Medicine, Rehabilitation, Social Work, Nutrition, Special Services, Nursing, and Pharmacy worked together to develop special programs for patients on this new unit. The objective was to maintain, and if possible, enhance the patient's

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ability to function and to provide psychosocial support to patients while waiting placement.

The Director of Pharmaceutical Services and the Clinical Coordinator originally set up clinical pharmacy programs such as formalized medication review, relevant documentation, PPM, medication histories, patient counselling and group discussions on the unit. The Clinical Coordinator became the unit pharmacist when the Transitional Unit opened in July 1992. The concept of Pharmaceutical Care, and the pharmacist's role in managing the eight types of drug-related problems² was introduced to the unit's geriatrician and the members of the interdisciplinary team. The role of the pharmacist was specified in the unit's interdisciplinary team manual.

The clinical coordinator spent 30% of her time on clinical duties in the Transitional Unit. All pharmacists assisted in monitoring medication orders while assigned to distribution activities. Newly transferred patients (approximately one to four each week) were targeted for Pharmaceutical Care. The rest of the patients in the unit received PPM. Information obtained from communication with the patients/families, health care team members, chart review and the pharmacy care plan was documented on a two-page Pharmacy clinical profile. The pharmacist utilized as many PC principles in providing PPM as possible since time constraint did not permit a full Pharmacist's Management of Drug-Related Problems (PMDRP) work-up on each patient. The pharmacist also quickly reviewed medications for 50% of the patients each week during the interdisciplinary team conference and provided recommendations to manage drug-related problems.

The provision of Pharmaceutical Care on the Transitional Unit followed the guidelines of the PMDRP developed by the University of Toronto, Faculty of Pharmacy.³ The initial step was to evaluate a patient's drug-related needs through chart review and communication with the patient/family or other health care professionals. A relevant data base including medication history was collected and documented on the PMDRP form. The individual patient's predisposition to drug-related risk was assessed. The pharmacist subsequently established a pharmacy care plan, which included the following:

(a) **Identification of drug-related problems:** The pharmacist identified drug-related problems by assessing whether any actual or potential undesirable signs and symptoms experienced by a patient were related to drug therapy or lack of drug therapy. Relevant drug-related concerns from patients or their families were addressed by the pharmacist, or were referred to the interdisciplinary team members when appropriate. Interdisciplinary team members often referred suspected drug-related problems to the unit pharmacist. The pharmacist performed a formalized medication review on four patients each week to identify drug-related problems and discussed their management at the interdisciplinary rounds. The pharmacist looked for a valid reason for each medication, appropriate route, dosage, administration schedule and duration of therapy, potential non-drug measures, presence of actual or potential adverse drug reactions and drug interactions. There were 159 formalized medication reviews provided for 81 patients from July 14, 1992 to April 30, 1993;

(b) **Determination of desired outcome and therapeutic altern-**

atives: The pharmacist considered the risks and benefits of each major therapeutic alternative. The expertise of other team members was utilized in assessing the management of drug-related problems, e.g., discussing suspected anti-depressant related dysphagia with the speech pathologist, or assessing an RN's request to initiate an appetite stimulant for a patient with the clinical dietitian;

(c) **Provision of an individualized therapeutic plan to manage the drug-related problem(s):** The pharmacist recommended a therapeutic and monitoring plan, and discussed it with the unit physician, nurses, and other team members at the weekly interdisciplinary rounds. The pharmacist counselled appropriate patients as well as those who were referred by interdisciplinary team members;

(d) **Follow-up:** The pharmacist followed up on the outcome of interventions and monitored ongoing pharmacotherapies by chart review, communication with the patient/family or the interdisciplinary team members.

Between July 14, 1992 to April 30, 1993 a total of 152 drug-related problems were identified through provision of PC and PPM/clinical pharmacy services utilizing the PC principles (Table I). Most drug-related problems existed for several weeks prior to the patients' transfer to the Transitional Unit. The pharmacist managed these drug-related problems in collaboration with the physician and other team members. One-hundred-and-sixty-nine interventions were recommended by the pharmacist, of which 157 (93%) were accepted, two (1%) were accepted with modification, three were rejected (2%), and seven (4%) had unknown physician acceptance. Examples of interventions in management of actual or potential drug-related problems are

Table I. Drug-related problems identified in Transitional Unit patients (July 1992 to April 30, 1993)

Drug-Related Problems	Numbers
1. No valid indication: Drug therapy not required Non-drug treatment indicated, Simplification of drug treatment more feasible	42
2. Untreated indication: Indication for drug therapy documented but drug not ordered	11
3. Inappropriate drug: Alternate drug more appropriate	8
4. Under-dosage: Higher dosage more appropriate	8
5. Over-dosage: Lower dosage more appropriate	26
6. Non-compliance/ Inappropriate administration/ Incomplete/unclear orders	37
7. Adverse drug reactions	19
8. Drug/Food/Lab interactions	1
Total drug-related problems	152

Table II. Pharmacist's interventions which were accepted by physicians (July 14, 1992 to April 30, 1993)

Category	Number of Interventions
Discontinue drug	63
Decrease dose/frequency	30
Clarification	20
Lab test	12
Reassess drug	10
Addition of drug	7
Increase dose/frequency	7
Change of drug	4
Change in administration time	3
Change in dosage form	1
Total accepted interventions	157

listed in Appendix A. Patient outcomes after management of the actual drug-related problems are provided as available. The ranking of the significance of the pharmacist's interventions was adapted from Hatoum et al.⁴ Out of the 157 accepted interventions, 29 (19%)

were classified as somewhat significant, such as discontinuation of prn medications which were rarely required by patients. One-hundred-and-twenty-one interventions (77%) were classified as significant, such as DRP #1 and DRP #4 in Appendix A, and seven

(4%) as very significant, such as DRP #2 in Appendix A. Since polypharmacy is a frequent problem in elderly patients, simplification of medication regimens, and encouragement of patient self-reliance and independence were the common goals of the team. The most frequent intervention category was "discontinuation of unnecessary medications", followed by "decrease in dose and frequency", (Table II), reflecting many situations in which elderly patients could receive lower drug doses in light of their advanced age, age-related decrease in renal function or renal impairment.

Pharmaceutical Care enabled the pharmacist to better satisfy the patient's drug-related needs through more communication with the patient/family and other interdisciplinary team members. This could be illustrated by the following two examples. An elderly patient and her daughter were upset because the patient was suffering from frequent headaches but was not receiving any treatment because of lack of understanding due to a language barrier. The pharmacist identified this drug-related problem while performing a medication history interview via an interpreter. The analgesic which the patient received prior to admission was subsequently prescribed. The word "headache" in the patient's own language was put on a wall chart as well as on the nursing care plan to facilitate communication. This drug-related problem of untreated indication, which the patient felt was very important, could be easily missed if only pharmacotherapy monitoring was performed. The patient's headache was subsequently controlled with acetaminophen prn.

In the second example, a patient who received numerous medications was unable to sleep for two days because her physician discontinued her lorazepam bedtime dose in

addition to her daytime doses which caused drowsiness. The patient's daughter communicated her concerns to the pharmacist during a medication discussion group. Oxazepam 15 mg hs prn was prescribed upon the pharmacist's recommendation, since the patient had been receiving this drug for eight years prior to her admission. The patient subsequently had no further complaints of insomnia. This example shows that what the pharmacist sees as important (e.g., to minimize polypharmacy) could be different from what the patient sees as important (to obtain a good sleep at night). While satisfying the patient's drug-related need, a trusting relationship was built between the patient and the pharmacist. Subsequently, the pharmacist was also able to work with the physician and the patient to reduce other unnecessary medications.

The main limitation to our practice was that only selected newly transferred patients were receiving full PC. Depending on the complexity of the medical and drug-related problems, a complete PMDRP workup for a patient might take several hours during the initial training stage. However, this decreased to one to two hours as the pharmacist's efficiency improved, since much less workup time was required for patients with similar disease states and drug-related problems. Because of time limitations on the pharmacist, other patients received decentralized PPM. Even though PPM allowed the pharmacist to cover a large number of patients, it could be difficult to determine objective endpoints and there was much less patient participation.⁵ Realizing its limitation, the unit pharmacist utilized as many PC principles as possible in providing PPM. Another challenge in providing PC was the difficulty in establishing patient-

pharmacist relationships with patients who had Alzheimer's disease or cognitive impairment and had no visiting family members. Due to the small numbers of patients who received full PMDRP workups and the majority of patients who received PPM with utilization of PC principles, the number of DRPs identified in the two processes were not compared.

Our experience suggests that it may be possible to initiate Pharmaceutical Care in a geriatric transitional unit, starting with a small number of patients at a time, then gradually increasing the numbers as efficiency is achieved. It is important to set realistic goals and go one step at a time, such as completing one PMDRP a month initially, then gradually increasing the frequency. Subsequently, a more condensed monitoring form could be developed and utilized. To facilitate the provision of Pharmaceutical Care, the following additional practical steps may be considered: (a) Prioritization of activities such as decreasing the number of nursing inservices or minimizing the number of pharmacy meetings to allow the pharmacist to focus on PC; (b) Documentation of pharmacists' interventions⁶ to show therapeutic and financial impact on patient care; (c) Sharing information with medical staff and other interdisciplinary team members during times such as team conferences or hospital grand rounds.

Because of resource limitations, it may not be possible to provide a full Pharmaceutical Care PMDRP workup for every patient. However, pharmacists can utilize the principles of Pharmaceutical Care in their daily practice. This may include: establishing communication and a trusting relationship with the patients/families regarding their drug-related needs; utilizing resources from the interdisciplinary team; following up on outcomes of

interventions to assess whether the patients' drug related needs are indeed satisfied or desired pharmaceutical outcomes are met; and modifying the therapeutic and monitoring plans, if necessary.^{2,7} The transition to PC requires a marriage of the clinical pharmacy practice model with management and system support.⁸ There is still a long way to go to achieve provision of Pharmaceutical Care to all patients. However, the journey begins with the initial first steps from each of us. ☒

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APPENDIX A**EXAMPLES OF DRUG-RELATED PROBLEMS AND MANAGEMENT**

The classification of drug-related problems was adapted from Strand et al⁹. Patient outcome after management of actual drug-related problems is provided where available.

DRP#1: No valid indication

(a) A patient who had no documentation or complaint of ulcer/GI problem and had not complained of such had been given ranitidine since receiving care in the Critical Care Unit several months prior. Suggested to reassess and discontinue if appropriate.
Outcome: Patient had no complaint of any GI problem upon discontinuation of ranitidine.

(b) A patient had not complained of nocturnal leg cramp for several months but was still receiving quinine sulphate 200 mg hs. Suggested to hold and discontinue if no further complaint.

Outcome: Patient had no complaint of nocturnal leg cramp upon discontinuation of quinine.

DRP#2: Untreated indication

A patient experienced hypokalemia two weeks prior to the transfer to the Unit but was not receiving potassium supplementation. The patient also had intermittent diarrhoea. Suggested to check level and reassess if potassium supplement needed.

Outcome: New serum potassium concentration = 1.7 mmol/L. Patient was started on KCl IV and his potassium concentration was subsequently normalized.

DRP#3: Inappropriate drugs

(a) A patient with constipation could be at risk of developing colitis secondary to a prn order of soap sud enema. He also received four other laxatives prn. Suggested to discontinue soap sud enema, and change Milk of Magnesia (MOM) to MOM with cascara concentrate 15 mL daily for one week then reassess.

Outcome: No worsening of constipation upon discontinuation of soap sud enema.

(b) An elderly diabetic patient with renal impairment had demonstrated aggression to RNs while receiving insulin injection qam. The patient's sepsis had been resolved, hence, he might not require further insulin on a sliding scale. His most recent fasting glucose as per Accucheck at 0800h during the past week were 2.9, 4.3, 7.6 and 3.7 mmol/L. His previous anti-diabetic medications at different times included chlorpropamide with metformin and glyburide. Discussed with dietitian and physician. Dietitian suggested a diabetic diet. Pharmacist suggested to change insulin to glyburide 2.5 mg qam and monitor glucose level bid with Accucheck.

Outcome: The patient was subsequently stabilized on glyburide 5 mg daily with fasting glucose between 5 to 8 mmol/L with no further expression of aggression.

DRP#4: Under-dosage

A patient's rash was not improving because the patient had been receiving hydrocortisone cream 1% with nystatin cream 50/50 too infrequently for four days as it had been ordered on a prn basis. Suggested to change order to "apply cream qid regularly and reassess in seven to ten days".

Outcome: The patient's rash was resolved within seven days and the drug was subsequently discontinued.

DRP#5: Over-dosage

(a) A patient with an estimated CL_{cr} of 20 mL/min was at risk for accumulation of ciprofloxacin which she was receiving at a dose of 500 mg bid for UTI. Suggested to reduce dose to 250 mg bid.

(b) A patient was at risk of experiencing further worsening of her peripheral edema while receiving diltiazem SR 90 mg qid prescribed on admission, with no documentation of indication of this unusual frequency. The frequency was decreased to bid upon the pharmacist's verification of such with the patient's local pharmacy.

DRP#6 Non-compliance/inappropriate administration

A patient with COPD/asthma developed oral candidiasis after receiving high doses of beclomethasone inhalation. Suggested to document on physician order and Nursing care plan to ensure that the patient rinse mouth after use. The pharmacist also provided patient counselling.

DRP#7 Adverse drug reactions

A COPD patient's heart rate was increased from 80 bpm to 110 bpm while receiving salbutamol inhaler 2 puffs qid for several months. Suggested to reassess and change salbutamol to 2 puffs qid prn.

Outcome: The patient did not experience worsening of SOB while receiving much less frequent administration of salbutamol on a prn basis. Her heart rate decreased to 85-90 bpm. She became more active with greater participation in group activities.

DRP#8 Drug/Food/Lab interactions

A patient was at risk of experiencing worsening of his UTI secondary to decreased absorption of ciprofloxacin (prescribed as 500 mg bid at 1000h and 2200h) due to a drug interaction with Milk of Magnesia (MOM), prescribed as 30 mL hs prn constipation. Suggested to change MOM to 30 mL daily at 1500h prn while on ciprofloxacin.