

Pharmacist-Reviewed Medication Histories in a Surgical Preassessment Clinic

Marianne Gulka, Joyce Walker, Brenda Thiessen and Mike Gaucher

INTRODUCTION

In response to fiscal constraints in the health care sector, hospitals are intensifying their search for programs which maximize cost effectiveness and efficiency while maintaining high quality patient care. Surgical Preassessment Clinics (PACs) allow pre-operative tests and teaching to be completed on an outpatient basis, thereby decreasing the length of hospital stay.¹ Patients are seen in the PAC up to 30 days pre-operatively. During this visit, patients undergo a physical examination, a history is obtained, and baseline diagnostic and laboratory testing is performed. Patients report to the Same Day Surgery (SDS) unit on the day of surgery, and are admitted to hospital post-operatively. This process eliminates one to two days in hospital that were traditionally used to prepare patients for surgery.

A medication history is part of the data collected during the preassessment work up. This history may be completed by a physician or nurse during the PAC visit or may be mailed in by the patient's family physician. An accurate and complete PAC medication history is crucial as it is used by anaesthetists when ordering medications pre-operatively and by surgeons when ordering medications post-operatively.

Following patient admission to hospital, pre-operative and post-operative medication orders are processed by a pharmacist. Any problem orders identified are clarified by the pharmacist through discussions with the surgeon or anaesthetist, often via telephone. Clarifications of this sort are frequently difficult as surgeons and anaesthetists rarely prescribe routine medications to patients prior to hospitalization. The time required for these clarifications can result in interruptions in the patient's drug therapy.

A program was developed at our hospital in which pharmacists reviewed and clarified PAC medication histories prior to surgery. The goals of the program were to improve the continuity of medication therapy,

enhance patient care, and further increase the efficiency and effectiveness of the PAC.

Program Description

Procedures were developed for the pre-admission review of PAC medication histories by a pharmacist. Pharmacy work flow was designed to complement the established procedures of the PAC. The pharmacist went to the PAC daily, Monday through Friday, and reviewed the charts of patients scheduled for surgery the following day. The nursing history, physician's history, and physical form were reviewed by the pharmacist and clarified prior to patient admission for incomplete medication information, non-formulary medications, and any discrepancies between the two data bases. Clarifications were made by contacting the patients at their homes, telephoning their community pharmacy, and/or calling their family physician. Formulary alternatives were suggested for non-formulary medications.

A documentation system for pharmacist-generated histories was established. The "Pharmacy Pre-admission Medication List" (PPML) was used to document clarification of medication histories. The PPML became a permanent part of the patient's chart. A clarification alert sticker was inserted on the physician's history and physical form to indicate a PPML was in the patient's chart.

Marianne Gulka, BSP, is a Staff Pharmacist at St. Paul's Hospital in Saskatoon, Saskatchewan.

Joyce Walker, BSP, is Manager of Pharmacy Services at St. Paul's Hospital in Saskatoon, Saskatchewan.

Brenda Thiessen, MSc(Pharm), is Assistant Director of Clinical Pharmacy Services for the Saskatoon District Health.

Mike Gaucher, BSP, MBA, is Director of Pharmaceutical Services for the Saskatoon District Health.

Address Correspondence to: Marianne Gulka, BSP, Department of Pharmacy, St. Paul's Hospital, 1702 - 20th Street West, Saskatoon, Saskatchewan, S7M 0Z9.

Program Evaluation

The evaluation of the program consisted of an audit of patients admitted through the PAC to the 308-bed community hospital during a fifteen-week period. The first phase consisted of nine weeks of baseline data collection, followed by a six-week evaluation of the pharmacy reviewed medication program. Baseline data were collated over nine weeks during which there was no pharmacy involvement in the PAC. Post-operative medication orders for patients admitted through the PAC were collected. Problem medication orders which may have originated from an unclear or incomplete medication history were documented. Problem categories included dose, frequency of administration, allergies, non-formulary product requests, and miscellaneous.² The number of telephone calls to physicians for order clarification was tabulated.

The six-week program evaluation period immediately followed baseline data collection. Patients were excluded from the study if their charts were unavailable for pharmacist review, or if their PAC appointment and surgical procedure were scheduled for the same day. Time spent reviewing, clarifying, and documenting medication histories was self-timed and recorded to assist in determining pharmacist workload.

Methods were developed to evaluate physician acceptance of the program. "Acceptance" occurred if the physician ordered medications as per the PPML. "Rejection" occurred if the physician ordered medications as per the PAC physician medication history. Neither acceptance nor rejection occurred if the medications on the PPML were not ordered post-operatively. A survey was also distributed to all surgeons and anaesthetists (n=44) to evaluate their satisfaction with the program.

Evaluation Results

During the baseline period, 74 medication orders required clarification (an average of 8.2/week) compared to 23 medication orders requiring clarification during the six-week pilot period (an average of 3.8/week). While pharmacist participation in the PAC appears to decrease the number of post-operative clarifications by 54% (8.2/week compared to 3.8/week), this cannot be tested statistically because the number of post-operative medication orders for patient admitted through the PAC is unknown. Table I outlines the types of medication order clarifications required during these two periods. Seventy-four percent of the post-operative clarifications that were required during the six-week program evaluation period involved patients who could not be reached prior to admission or whose history and physical forms were unavailable in the PAC. Pharmacist clarification of medication orders required between one and four phone calls to physicians.

During the six-week program evaluation period, medication histories for 437 PAC patients were screened by a pharmacist. Eighty-eight (20.1%) of these histories required clarification. Table II outlines the information sources used to clarify PAC medication histories. A total of 257 clarifications were made to medication histories pre-operatively. Of these, 109 (42%) involved medications which were not ordered for the patient post-operatively. Of the remaining 148 recommendations, 139 (94%) were accepted and 9 (6%) were rejected by physicians when writing medication orders post-operatively. Thirty-seven allergies were noted by the pharmacist on the PPML. A description of each reaction was provided by the pharmacist based on discussion with the patient. Pharmacists were also able to assess patient compliance with their medications and target non-compliant patients for discharge counseling. Patients with actual or potential drug-related problems were identified for drug therapy monitoring by a pharmacist following admission.

Pharmacist workload was self-timed and documented during the program evaluation period. On average, 14.6 medication history reviews and 2.9 history clarifications were performed daily. The pharmacist spent an average of 65 minutes (1.1 hours) per day reviewing and clarifying medication histories.

Table I: Post-operative Medication Order Clarifications

PROBLEM CATEGORY	Phase I*	Phase II**
	(n = 74)	(n = 23)
	Clarifications/Week	Clarifications/Week
Dose	2.7 (32.4%)	1.3 (34.8%)
Frequency of Administration	3.0 (36.5%)	1.0 (26.1%)
Non-Formulary	1.4 (17.6%)	0.5 (13.0%)
Allergy	0.2 (2.7%)	0.7 (17.4%)
Miscellaneous	0.9 (10.8%)	0.3 (8.7%)
Total	8.2 (100%)	3.8 (100%)

* Duration of Phase I was 9 weeks

** Duration of Phase II was 6 weeks

Table II: Information Sources Used to Clarify PAC Medication Histories

Type of Contact	Number of histories (%) n=88
Patient Contact	69 (78.4%)
Community Pharmacy Contact	1 (1.1%)
Multiple Contacts*	5 (5.7%)
No Contact Necessary	13 (14.8%)

* Multiple Contacts include a combination of patient, community pharmacy, family physician sources

Survey Results

Twenty (45%) of the surveys were completed by anaesthetists and surgeons. Sixteen respondents (80%) had referred to the PPML during the program evaluation period. Eleven (55%) of these had used the PPML five or more times when ordering medications. All of the information provided on the PPML was ranked as valuable (4) or very valuable (5) on a five point scale. Seventy-five percent of respondents indicated pharmacy involvement in the PAC had reduced the number of post-op medication order clarifications. Physicians valued the pharmacist's involvement in the PAC and requested the program continue on a permanent basis.

In conclusion, the pharmacist review and clarification of PAC medication histories enhanced patient care by improving the continuity of medication therapy post-operatively. Other patient care benefits included improved documentation of patient allergies and the iden-

tification of patients for drug therapy monitoring on admission or for discharge counselling.

The role of the Preassessment Clinic at St. Paul's Hospital has grown since its introduction. By April 1994, 92% of all elective, urgent, and cancer surgical cases were reviewed through the PAC. The pilot program was implemented on a permanent basis in October 1994 and continues to have a positive impact on patient care.

REFERENCES

1. Surgical Methods Study: A summary report on presurgical admissions and rates of day surgery in Saskatchewan. HSURC Summary Report No. 1, Health Services Utilization and Research Commission; Saskatoon, Saskatchewan, July 1993.
 2. Bhanji AA, Fallon KM, LeBlanc SP. Pharmacy involvement in a surgery preadmission program. *Am J Hosp Pharm* 1993; 50: 483-6.
-