Use of Health-Record Abstracting to Document Pharmaceutical Care Activities

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ABSTRACT

Objectives: The purpose of this study was to develop a system of pharmacy documentation and information retrieval that would avoid duplication of information and result in accurate workload measurements. This pilot project assessed the resources needed to implement the system throughout the Royal Columbian Hospital, New Westminster, British Columbia.

Methods: Two pharmacists, working in the Coronary Care Unit, documented drug-related problems directly in the patient health-care record and coded each note with the following information: a number representing the pharmacist, the ward where the note was written, and the type of drug-related problem. The Health Records Department, upon abstracting the health-care record, retrieved and reported this information. Duplicate records were kept in the Pharmacy Department for audit purposes.

Results: Reports generated by the Health Records Department included the number and types of notes written, classified by both patient and pharmacist. The information reported by the Health Records Department was more accurate than the information reported by the Pharmacy Department. It was calculated that the future cost of implementing this system throughout the entire institution would be 0.08 full-time equivalents.

Conclusions: This project demonstrated that when pharmacists document drug-related problems directly into the patient health-care record, the information can be accurately retrieved and reported by the Health Records Department.

Key words: pharmaceutical care, documentation, workload

RÉSUMÉ

Objectifs : Le but de cette étude était de mettre sur pied un système de recherche documentaire et d'information pharmaceutiques qui éliminerait la duplication de l'information et permettrait de mesurer précisément la charge de travail. Ce projet pilote a évalué les ressources nécessaires à la mise en oeuvre de ce système à la grandeur du Royal Columbian Hospital, à New Westminster, en Colombie-Britannique.

Méthode : Deux pharmaciens travaillant à l'Unité de soins coronariens ont documenté les problèmes pharmacothérapeutiques directement dans le dossier médical des patients et ont assigné un code à chaque note portée au dossier avec l'information suivante : un numéro représentant le pharmacien, le service où la note a été rédigée, et le type de problème pharmacothérapeutique. Le Service des dossiers médicaux, après avoir dépouillé les dossiers, a récupéré l'information puis en a rédigé un rapport. Des doubles ont été conservés au Service de pharmacie aux fins de vérification.

Résultats : Les rapports rédigés par le Service des dossiers médicaux comprenaient le numbre et le type de notes classées à la fois par patient et par pharmacien. L'information présentée par le Service des dossiers médicaux était plus précise que celle consignée par le Service de pharmacie. On a calculé qu'il en coûterait 0,08 équivalent temps plein pour mettre en oeuvre ce système à la grandeur de l'établissement.

Conclusions : Ce projet a montré que lorsque les pharmaciens documentaient les problèmes pharmacothérapeutiques directement dans le dossier médical du patient, le Service des dossiers médicaux pouvait de façon précise en extraire l'information et en rédiger un rapport.

Mots clés : soins pharmaceutiques, documentation, charge de travail

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INTRODUCTION

The need for pharmacists to document their activities in the health-care record is well established.[1] In 1992, the Canadian Council on Health Facilities Accreditation (now the Canadian Council on Health Services Accreditation) specified as a standard of pharmacy services for patient care management that "Drug related patient care is documented to ensure continuity and ongoing evaluation and to assist in discharge planning."[2] The College of Pharmacists of British Columbia has also stated that the pharmacist shall document all patient-specific recommendations and changes in medication therapy, medication information requests, medication counselling, and medication histories as a permanent part of the patient's health-care record.[3] Management information system guidelines require such documentation for workload measurement calculations. Documentation can also be used as a monitoring tool and to assess patient outcomes. In the future, as resources become more limited, the documentation will be used in determining the patient-specific costs of clinical pharmacy interventions. Despite these requirements, however, documentation should not be detrimental to patient care in terms of the time necessary for its completion.

The Royal Columbian Hospital is a 395-bed tertiary care hospital in New Westminster, British Columbia. The pharmacy employs 22 full-time pharmacists, and its hours of operation are 0700 to 2400 daily. At the time this project was undertaken, a pharmacist's patient-care activities were documented on a pharmacy-specific patient monitoring form (Appendix 1). When a patient was identified for monitoring, the patient database portion of the form was completed, and written notes of all drug-related problems, assessments, and monitoring plans were recorded in the monitoring section of the form. On each follow-up visit, the pharmacist updated the form and recorded additional monitoring notes as appropriate. Written information for the physician was left as a memo on the front of the chart. At that time, only pain consults and therapeutic drug monitoring notes were documented in the progress notes of the patient health-care record. Upon discharge, the initial assessment and the number of follow-up pharmacy visits were manually recorded by pharmacy staff, and a total for the entire pharmacy staff per fiscal period was tabulated. Using management information system guidelines, this information was translated into workload measurements. This process involved duplication of the information already documented in the patient health-care record.

Documenting directly into the health-care record allows for continuity of care by other pharmacists and other health-care workers.[4] Direct documentation fulfills accreditation needs and improves the efficiency of the pharmacist by reducing duplication of records. The time saved in record-keeping can be used for direct patient care.

It was proposed that data for workload measurement at the Royal Columbian Hospital could be retrieved directly from the health-care record when it is abstracted by the Health Records Department. The objectives of this pilot study were to compare the accuracy and completeness of such information as collected by the Health Records Department and as determined from Pharmacy Department data and to calculate the resources that would be needed by the Health Records Department to perform this service on a continuing basis throughout the hospital.

METHODS

The project was conducted in the 10-bed Coronary Care Unit, where 2 pharmacists (including W.G.) working on a rotating schedule were providing pharmaceutical care and where the framework for documenting drug-related problems in the patient health-care record had been previously established.[4] From February 1 to March 31, 1995, all clinical pharmacy notes written in patients' health-care records were coded as follows: a pharmacist identification number, the ward where the note was written, and the type of drug-related problem (Table 1). An example of a typical clinical pharmacy note is shown in Figure 1. A copy of each note was kept in the Pharmacy Department for subsequent audit.

The Health Records Department was asked to develop a program that would capture the desired information. When the patient was discharged from the hospital the chart was reviewed by Health Records personnel. The clinical pharmacy notes were identified, and the coded information was stored in a computer database. The Health Records Department was using the Meditech coding and abstracting system (Meditech, Boston, Massachusetts), and a project area was developed. At the end of the trial period, the information was retrieved, and documentation measurements and reports were generated. These reports identified the number and type of notes written by each pharmacist and the total number of notes written during the specified period. This information was compared with similar data as recorded by the Pharmacy Department. A complete audit was performed by independent review of all of the health-care records in which pharmacist notes were

Table 1. Codes for Documenting Clinical Activities

Code	Drug-Related Problem	Description
1	No drug	Drug indicated but not prescribed Noncompliance
2	Wrong drug	Inappropriate drug prescribed
3	Wrong dose	Prescribed dose too high Prescribed dose too low Incorrect or inconvenient dosing interval
4	Adverse drug reaction	Side effect Allergy Drug-induced disease
5	Drug interaction	Drug–drug interaction Drug–food interaction Drug–laboratory interaction
6	Medication history	Current medications Previous medications Compliance Adverse drug effects
7	Miscellaneous	Any intervention not otherwise categorized

identified on the basis of the copies of the notes kept by the Pharmacy Department and the reports generated by the Health Records Department. The audit assessed the accuracy of each department's system by determining the number of notes written in the Coronary Care Unit and the number written and recorded for other areas of the hospital not included in the pilot project. By cross-referencing the lists, it was possible to identify notes recorded by one system but not the other and thus to determine the actual number of notes written.

The resources needed by the Health Records Department were determined by summing the number of hours involved for each task and multiplying the total by the hourly wage for the appropriate staff member. The future costs of implementing this program in the rest of the hospital were calculated by extrapolating from the number of patients and the number of notes generated in this pilot project to the number of patients served by the entire institution.

RESULTS

The reports generated by the Health Records Department after completion of the study period included the number and types of notes written, classified by both patient and pharmacist.

Over the 2-month period a total of 82 notes were written for 57 patients. The number of notes written by each pharmacist involved in the study was proportional to his or her allocated clinical time; on average, 1.5 notes were written each day. For most of the patients, only one note was written; 16 patients had 2 notes, 3 patients had 3 notes, and 1 patient had 4 notes.

Table 2 shows the numbers of drug-related problems identified and documented by each pharmacist. Half (41) of the notes identified drug-related problems for these patients. The highest total

Date: _____

Time: _____

Objective Information

Medication History — information received from community pharmacy

diltiazem SR 120 mg tid
clonidine 0.2 mg tid
furosemide 40 mg bid
isosorbide dinitrate 10 mg tid
prazosin 2 mg tid

BP 200/110. Patient has not received any antihypertensive medications since admission to hospital

Assessment

Increased BP may be secondary to discontinuation of BP meds

Plan

Consider restarting above medications

Pharmacist name:

13/CCU/1,6*

SR= sustained release, BP = blood pressure, CCU = coronary care unit.

* Identifying information, presented as pharmacist identification number / ward where note was written / code for type of drug-related problem (see Table 1 for definitions of codes).

Figure 1. Example of a completed clinical pharmacy note.

Table 2. Summary of Interventions for 2 Coronary Care Unit Pharmacists over a 2-Month Period

Pharm ID	No. of Notes	No Drug	Wrong Drug	Wrong Dose	ADR	Interaction	Medication History	Misc
1	54	10	4	6	8	10	21	26
2	28	6	7	2	7	0	4	9
Total	82	16	11	8	15	10	25	35

Pharm ID = identification number for pharmacist, ADR = adverse drug reaction, Misc = miscellaneous.

Table 3. Audit of Health-Care Record Documentation for the Coronary Care Unit (CCU) by Health Records and Pharmacy Departments

Notes	No. of Notes	
	By Health Records	By Pharmacy
Written and recorded	83	75
Written for other areas (not CCU)	3	2
Written and not recorded	2	9
Corrected total*	82	82

*Corrected total = (no. written and recorded) – (no. written for other areas) + (no. written and not recorded).

was recorded in the miscellaneous category, and medication history notes accounted for the second-highest total.

The patient lists generated by the Health Records and Pharmacy Departments were used to compare data on clinical pharmacy notes recorded by each department's system (Table 3). The Health Records Department recorded the data more accurately.

The project costs incurred by the Health Records Department are shown in Table 4. The cost to implement this program in the rest of the hospital was estimated at 0.08 full-time equivalents.

DISCUSSION

Pharmacists must document their activities in the patient health-care record to demonstrate the benefit of these activities to the patient and to the health-care team. Complete documentation will provide supportive information to present to accreditors and hospital administrators. Unfortunately, in some circumstances, documentation has become so time-consuming that the number of patients to whom a pharmacist can provide services is limited.[5] In one pilot study documenting pharmacists' activities, Chase and Bainbridge[5] enrolled only 10 patients because of the extraordinary amount of time required for manual transcription of the data. Eliminating the duplication of information is one way to improve efficiency. If a clear and concise pharmaceutical care note is written in the health-care record, no further documentation should be necessary.

Different systems have been developed to measure workload. Some establishments require that pharmacists submit a manual summary of pharmacy interventions, whereas others try to save time by having this information entered directly into a computer database.[6] Bar code technology has also been used to capture clinical workload data.[7,8] In terms of documentation, these systems require duplication and ultimately use

Table 4. Project Costs Incurred by Health Records Department

Position	Contribution	Cost Determination	Total Cost
Clinical data analyst	Project coordination Computer program design Report writing Report retrieval Analysis Preparation of final reports	15 h at $27.54/h + 18.5% (benefits)	$ 489.52
Health records administrators	Training Worksheet design Input and checking	1.75 h at $23.57/h + 18.5% (benefits)	$ 48.88
Clerical staff	Pulling and return of charts	4.5 h at $16.95/h + 18.5% (benefits)	$ 90.39
Total			$628.79

valuable time that might be better spent providing patient-focussed care.

This project demonstrated that writing a note directly into the health-care record and coding it at the time of documentation allows accurate retrieval and reporting of workload information by health records personnel when they abstract the chart. In fact, this project demonstrated that the Health Records Department system was more accurate in capturing pharmacy workload data than the manual recording system in the Pharmacy Department.

On the basis of the limited documentation observed in this study, we believe that pharmacists are still hesitant to document their involvement unless a change in medication therapy is needed. However, time and effort spent providing patient care should be documented even if no changes are warranted. With the development of confidence and experience, the number of notes written might be expected to increase.

The "miscellaneous" category accounted for the highest number of notes (Table 2). This indicated that a review of the drug-related problem codes was needed. However, the codes had to be fairly general to allow for further expansion of this program to the medical and surgical areas. Upon further implementation of this program, the miscellaneous notes will be reviewed to ensure that they are being properly recorded as alternative drug-related problem codes.

Further application of this system will allow for easily accessible audit information. Pharmacists can obtain feedback on how many notes of what type have been written, and where. This information can be compared by ward and by most responsible diagnosis. The pharmacy manager may also be better able to allocate resources with regard to areas that may require more pharmacy involvement.

It has been stated that evidence of productivity and impact on patient outcomes and cost will be essential to continue progress with clinical pharmacy systems.[9] Further expansion of this program will permit assessment of the impact of pharmacy interventions on patient outcomes.

As the demands to improve outcomes continue to grow, we must devise methods to streamline procedures for providing pharmaceutical care. Less time spent documenting activities may allow for more focus on direct patient-care activities and hence more benefit for patients. This project was successful in demonstrating a system that avoids duplication of information and provides accurate measurement of workload statistics as collected by the Health Records Department.

On April 1, 1999, this project was expanded to the entire institution. All pharmacist's notes are now coded with a number representing the pharmacist, the ward where the note was written, and the type of drug-related problem. Data collection and audit are continuing.

References

1. Angaran DM. Quality assurance to quality improvement: measuring and monitoring pharmaceutical care. *Am J Hosp Pharm* 1991;48:1901-7.
2. Canadian Council on Health Facilities Accreditation. *Acute care, large community and teaching hospitals*. Ottawa: The Council; 1992.
3. Bylaw 8: Hospital pharmacy. Section 88: Documentation. In: *Bylaws of the Council of the College of Pharmacists of British Columbia*. Vancouver: The College; 1999.
4. Naumann T, Tsuyuki R. Documentation of pharmaceutical care. *Can J Hosp Pharm* 1994;47:223-5.
5. Chase P, Bainbridge J. Care plan for documenting pharmacist activities. *Am J Hosp Pharm* 1993;50:1885-8.
6. Schumock G, Guenette, Clark T, McBride J. Hospital mainframe computer documentation of pharmacist interventions. *Top Hosp Pharm Manage* 1993;13(2):16-24.
7. Zarowitz B, Petitta A, Rudis M, Horst H, Hyzy R. Bar code documentation of pharmacotherapy services in intensive care units. *Pharmacotherapy* 1996;16:261-6.
8. Scott M, McElnay J, Burnett K. Using bar-code technology to capture clinical intervention data in a hospital with a stand-alone pharmacy computer system. *Am J Health Syst Pharm* 1996;53:651-4.
9. Bajcar J, Chin T, Chui W, Wichman K. Development of a comprehensive clinical pharmacy workload documentation system. *Can J Hosp Pharm* 1995;48:80-9.

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Appendix 1. Patient Monitoring Form

Initial monitoring date: _____ Discontinue date: _____

Age: _____ Sex: _____ Admission date/time: _____

Ht: _____ Wt: _____ BW: _____ DBW: _____

SCr: _____, date: _____ est CrCl: _____

List of Medical Problems/Diagnoses:

1. _____ 5. _____
2. _____ 6. _____
3. _____ 7. _____
4. _____ 8. _____

CC: _____

HPI: _____

_____

PMH: _____

_____

Allergies: _____

Medications PTA

FHx: _____ SHx: _____

Compliance assessment: _____

Present Medications

Medication	Dose, Route, Frequency	Start	Stop	Medication	Dose, Route, Frequency	Start	Stop

IV Solution(s)

Solution	Volume	Additive	Conc'n	Rate (Vol/Time)	Rate (Amount/Time)	Start	Stop

PRN Medications

PRN Medication	Dose, Route, Frequency	Date											

Diagnostic Procedures

Date	Diagnostic Procedure and Result

Laboratory Values

Date	Gluc	Na/K	Cl/ HCO_3	BUN/ SCr	CrCl	WBC/ Neut	Hb/ Plt	Alb	PT/ INR			

Culture and Sensitivities

Date	Specimen	Gram Stain	Organism	Sensitivity

Serum Drug Levels: AMG, vancomycin

Date	Drug, Dose, Frequency	Time Before	Level Before	Time Infusion Started	Time Infusion Ended	Time After	Level After	SS?	VD	$t_{1/2}$	Extrapolated After/Before

Continuous Infusion and Random Drug Levels (e.g., THEO, PHT)

Date	Drug, Dose, Frequency	Route	Start Date & Time	Stop Date & Time	Duration	Time Level	Level	SS?	Corrected Level

Abbreviations: Ht = height, Wt = weight, IBW = ideal body weight, DBW = dosing body weight, SCr = serum creatinine, CrCl = creatinine clearance rate, CC = chief complaint, HPI = history of present illness, PMH = past medical history, PTA = prior to admission, FHx = family history , SHx = social history, Gluc = glucose, BUN = blood urea nitrogen, WBC = white blood cells, Neut = neutrophils, Hb = hemoglobin, Plt = platelets, Alb = albumin, PT = prothrombin time, INR = international normalized ratio, AMG = aminoglycoside, SS = steady state, VD = volume of distribution, $t_{1/2}$ = half-life, THEO = theophylline, PHT = phenytoin.