Provision and Documentation of Cognitive Services by Pharmacy Students and Their Preceptors in the Community Setting

Candace W. Barnett
Diane Nykamp
William Hopkins, Jr.
Roger S. Klotz

BACKGROUND

The U.S. Department of Health and Human Services Inspector General's report documents that community pharmacists' cognitive services add value to patient care and reduce health-care costs (1). Recognizing that pharmacists' interventions reduce cost, third-party carriers (with the exception of Medicare and Medicaid) are in almost all cases paying pharmacists for cognitive services and for the full amount invoiced, if documented properly (2). Such documentation should include the following: (a) a confirmation (oral or written) from the prescriber that the pharmacist's intervention is necessary as part of the patient's therapy; (b) generation of a report

Candace W. Barnett, Ph.D., and William Hopkins, Jr., Pharm.D., are Associate Professors of Pharmacy Administration at the Southern School of Pharmacy, Mercer University, Atlanta GA 30345. Diane Nykamp, Pharm.D., is Professor of Pharmacy Practice at the Southern School of Pharmacy, Mercer University, Atlanta GA 30345. Roger S. Klotz, R.Ph., FASCP, is President and CEO of Specialized Clinical Services, Inc.

Journal of Pharmacy Teaching, Vol. 4(3) 1994

summarizing the activity, signed by the pharmacist with a copy sent to the physician; and (c) mailing of the documentation and an invoice to the insurance company (2).

Community pharmacy ownership has been slow to provide and bill for cognitive services for two reasons: (a) they believe they cannot charge if medication is not dispensed; and (b) most pharmacists do not document their cognitive services (2). Reasons for the latter include lack of time and fear of physician reprisal (3).

Thus, it is not surprising that little exists in the literature on the provision of cognitive services in the community setting. A few studies have demonstrated potential reimbursable community pharmacy services, i.e., serum cholesterol screening (4, 5), theophylline pharmacokinetic consultation (6), and a medication reminder system (7). A statewide survey identified those community pharmacists who currently provide specific cognitive services and those who do not (8). A lack of willingness by the non-service group was found to be dependant on factors conceming recognition of efforts, demand and reimbursement by patients, physicians, and third-party sources.

Provision and documentation of cognitive services by pharmacy students has been the subject of two recent studies. One study examined the identification and solving of drug-related problems in the institutional setting by pharmacy students in their last year of a B.S. program (9). The authors determined that the students tended to identify more problems than really existed, and the rate of acceptance of their suggested interventions was well below that of pharmacists. Another study examined the identification and solving of drug related problems in the institutional setting by post-B.S. Doctor of Pharmacy degree students (10). The preceptor-supervised interventions were determined to provide significant contributions to patient care and were accepted either fully or partially by the prescribers.

Cognitive services have been defined by one interested group as services a pharmacist provides to or for a patient or health care professional that are either judgmental or educational in nature rather than technical or informational (11). However, no uniform definition of the term "cognitive service" exists. The term is closely linked with the concepts of clinical pharmacy and pharmaceutical care. Cognitive services may or may not be related to the

dispensing of a prescription (12). Key components are application of the pharmacist's judgment and knowledge and skills (12-15) to solve drug-related problems. Of particular interest to third-party payers are dispensing related cognitive services that result in a change in therapy (16).

PURPOSE

In 1992, Mercer University Southern School of Pharmacy began requiring its entry-level Doctor of Pharmacy students on their third professional year community pharmacy externships and fourth professional year community pharmacy clerkships to document the cognitive services they perform. The purpose of this article is: (a) to describe the cognitive services performed; (b) to quantify the time required to perform and document these cognitive services; (c) to document whether suggestions made as a result of these cognitive services were implemented; (d) to estimate the potential payment by third-party carriers for these cognitive services; and (e) to measure the attitudes of the students' preceptors toward provision of cognitive services. The intent of this article is to describe this experience with provision and documentation of cognitive services in the community setting. No hypotheses were developed or tested.

METHODOLOGY

Throughout 1992, data on provision of cognitive services in community pharmacies was collected by students enrolled in their third and fourth professional years of the four-year entry-level, Doctor of Pharmacy program. The students were assigned to these pharmacies to complete their third-year externship (a ten-week experience) and fourth-year clerkship (a five-week experience). Prior to data collection, all students attended a one-hour orientation session about cognitive services and their documentation. Preceptors received the same information via videotape. The students were required to document the cognitive services they, in conjunction with the pharmacist/preceptor, performed with verification by the

pharmacist/preceptor. Each student was required to document at least ten cognitive services during the experience. A total of 65 students participated (19 were located in chain pharmacies, 32 in traditional/independent pharmacies, 11 in apothecaries, and 2 in a managed care setting).

Data collection forms were created whereby the student identified the type of cognitive service performed (using the categories listed in Tables 1 and 2); the start and stop times associated with providing and documenting the service; and whether the outcome was implemented by the physician. In addition to completing the data collection form for a cognitive service provided, students were required to document the service in a two page SOAP (Subjective, Objective, Assessment, Plan) note. (The pharmacist signed the note, verifying that the service was indeed performed.) A cognitive service was defined to the students and preceptors as pharmaceutical services involving the pharmacist's judgment which result in interruption of the treatment, a change in therapy, or implementation of a drug monitoring plan. Drug counseling (prescription or nonprescription) was defined to be a cognitive service if it resulted in one of the above outcomes and was provided verbally by the pharmacist.

The students were asked to classify each cognitive service they documented using fifteen categories based on those developed and described by Strand et al. (12) and used in similar research (9, 10). The completed SOAP note for each documented cognitive service was read and reviewed by a pharmacy practice faculty member to verify that the activity described was indeed a cognitive service as defined to the students and had been classified correctly. Only verifiable cognitive service documentations were included in the analyses.

Pharmacists have been paid in the range of $80 to $100 per hour by insurance companies for provision of cognitive services (17). For the purposes of this study, a rate of $90 per hour (or $1.50 per minute) was used. For each cognitive service documented, a calculation of the potential for payment was made based on this rate. The documentation was not submitted to the insurance companies for payment.

A questionnaire (See Appendix B) was mailed to the 42 pharmacist/preceptors who worked with the students in documenting cognitive services to measure their attitudes about this activity. Of

these, 22 worked in traditional independent pharmacies, 12 in chain pharmacies, 7 in apothecaries, and 1 in a managed care setting.

RESULTS

Provision of Cognitive Services

A total of 818 cognitive services were recorded. A mean of 12.6 services were recorded per site (std. dev. = 6.2; min = 1.0; max = 25.0). Table 1 provides a list of the types of cognitive services recorded. The most frequently documented cognitive services included the incomplete prescription (16.3%), inappropriate dosage, route, form, frequency, or duration (11.6%), and patient noncompliance (11.0%). Notable additions include the following: Instructing patients in the proper use of medical or surgical supplies comprised 15.8% of the cognitive services recorded in the apothecary setting and 11.7% in the independent setting, and drug information questions requiring minimal referencing comprised 24% of the cognitive services recorded in the managed care setting.

The mean amount of time to perform and document a cognitive service was 17.1 minutes (std. dev. = 17.6). Instructing patients in the proper use of medical or surgical supplies was the most time consuming service to perform and document (44.0 minutes). Other cognitive services requiring an average of more than 25 minutes to perform and document included: drug information question requiring extensive referencing; adverse drug reaction or side effect; drug-drug, drug-food, or drug-lab interaction; and excessive cost. Reviewing and interpreting the medication history to the physician was the least time consuming (11.0 minutes).

The mean potential payment per cognitive service in this study was $25.61 (std. dev. = $26.35). Table 2 identifies for each type of cognitive service, the mean time required to perform and document the service; the outcome (whether it was implemented); and the mean potential payment.

Where applicable, students recorded whether the result of a cognitive service was implemented by the prescriber. Implementation could be ascertained for 713 of the cognitive services provided. Of these, 646 (90.6%) were implemented. Notable areas regarding

TABLE 1. Types of Cognitive Services Performed.

COGNITIVE SERVICES	ALL SITES Frequency (%)	CHAIN SITES Frequency (%)	APOTHECARY SITES Frequency (%)	INDEPENDENT SITES Frequency (%)	MANAGED CARE Frequency (%)
Incomplete prescription	133 (16.3)	45 (18.7)	20 (13.2)	65 (16.9)	2 (8.0)
Patient noncompliance	90 (11.0)	26 (10.8)	18 (11.8)	40 (10.4)	4 (16.0)
Excessive cost to the patient	48 (5.9)	21 (8.7)	7 (4.6)	19 (4.9)	0 (0)
Inappropriate dosage, route, form, frequency, duration	95 (11.6)	36 (14.9)	18 (11.8)	33 (8.6)	4 (16.0)
Duplicative therapy	55 (6.7)	20 (8.3)	8 (5.3)	26 (6.8)	1 (4.0)
Inappropriate drug	14 (1.7)	2 (0.8)	3 (2.0)	6 (1.6)	3 (12.0)
Drug allergies	27 (3.3)	4 (1.7)	5 (3.3)	17 (4.4)	1 (4.0)
Adverse drug reaction or side effect	59 (7.2)	18 (7.5)	14 (9.2)	25 (6.5)	1 (4.0)

Drug-drug, drug-food, or drug-lab interaction	37	(4.5)	16	(6.6)	6	(3.9)	15	(3.9)	0 (0)
Counseling	30	(3.7)	9	(3.7)	2	(1.3)	15	(3.9)	2 (8.0)
OTC consult resulting in change in therapy	81	(9.9)	25	(10.4)	9	(5.9)	45	(11.7)	0 (0)
Instructs patient in proper use of medical or surgical supplies	80	(9.8)	11	(4.6)	24	(15.8)	45	(11.7)	0 (0)
Reviews/interprets medication history to the psysician	4	(0.5)	1	(0.4)	0	(0)	3	(0.8)	0 (0)
Drug information question requiring minimal reference	41	(5.0)	3	(1.2)	10	(6.6)	22	(5.7)	6 (24.0)
Drug information question requiring extensive referencing	22	(2.7)	4	(1.7)	8	(5.3)	9	(2.3)	1 (4.0)

TABLE 2. Time Required, Outcome, and Potential Payment for Each Type of Cognitive Service.

COGNITIVE SERVICES	Time to Perform and Document $\bar{x}$ (minutes) (s.d.)	Outcome* I	Outcome* NI	Potential Payment $\bar{x}$ ($) (s.d.)
Incomplete prescription	20.5 (26.8)	116	4 (3.3)	20.48 (26.75)
Patient noncompliance	23.8 (22.0)	71	13 (15.5)	23.83 (22.02)
Excessive cost	26.2 (16.1)	42	4 (8.7)	26.18 (16.06)
Inappropriate dosage, route, form frequency, duration	20.3 (13.5)	81	5 (5.8)	20.30 (13.50)
Duplicative therapy	21.3 (16.2)	40	10 (20.0)	21.29 (16.24)
Inappropriate drug	24.8 (13.5)	10	4 (26.7)	24.75 (13.45)
Drug allergies	23.0 (16.3)	18	6 (25)	22.96 (16.33)
Adverse drug reaction or side effect	35.3 (43.7)	46	3 (6.1)	35.29 (43.75)
Drug-drug, drug-food, or drug-lab interaction	31.2 (26.4)	24	8 (25)	31.24 (26.39)
Counseling	25.2 (16.9)	26	2 (7.1)	25.15 (16.86)
OTC consult resulting in change in therapy	16.9 (18.8)	73	3 (3.9)	16.93 (18.82)
Instructs patient in proper use of medical or surgical supplies	44.0 (34.9)	60	1 (1.6)	44.04 (34.87)
Reviews/interprets medication history to the physician	11.0 (5.7)	2	2 (50)	11.00 (5.68)
Drug information question requiring minimal reference	22.8 (17.7)	23	(0)	22.83 (17.71)
Drug information question requiring extensive referencing	35.6 (43.0)	12	2 (14.3)	35.66 (43.01)

* I = Outcome/recommendation was implemented.
NI = Outcome/recommendation was not implemented.

failure to implement cognitive service recommendations include: inappropriate drug (26.7% were not implemented); drug-drug, drug-food, drug-lab interaction (25% were not implemented); drug allergies (25% were not implemented); and patient noncompliance (14.3% were not implemented).

Preceptors' Attitudes

Twenty-four (57.1%) of the 42 preceptors returned the questionnaire. Of the respondents, 14 (58.3%) worked in traditional/independent pharmacies, 5 (20.8%) in chain pharmacies, 4 (16.7%) in apothecaries, and 1 (4.2%) in a managed care setting. Males numbered 20 (83.3%) and females 4 (16.7%). The mean age was 40.7 years. A majority of 16 (66.7%) held a B.S. degree in pharmacy, and 8 (33.3%) held the Pharm.D. as their highest degree.

An attitude scale containing nine items was developed to measure the pharmacists' attitudes about provision and payment for cognitive services. The items consisted of positive and negative statements. Responses were measured on a five-point Likert-type scale–strongly disagree, disagree, neutral, agree, strongly agree. Item analyses included independent samples t tests (to determine if an item discriminated between high and low scorers) and corrected item total correlations using Pearson r (to assess internal consistency reliability). For an item to remain in the attitude scale the following conditions had to be met: the t-test must be significant and corrected item-total correlations must be significant and not below 0.35 (18). The item analysis resulted in the elimination of 5 items from the attitude scale. The four remaining items, all facet-specific, dealt with how cognitive services would effect the relationship between the pharmacist and prescribing physician. These items were combined using the Method of Summated Rating (19). (The scoring was reversed for negatively worded items. This reversal was necessary so that a high score would consistently reflect a positive attitude.) The mean response was 3.5 with a standard deviation of 0.97. This response is very near the neutral point (3.00) but slightly more toward the positive or satisfied end of the continuum.

All 24 (100%) indicated that they should be paid a fee for performing cognitive services in a close-ended (yes/no) question. Twenty (87%) felt that the ownership of the pharmacy where they

were employed would be interested in submitting to insurance companies for reimbursement of cognitive services. The pharmacists felt that the income the pharmacy would receive from third parties for provision of cognitive services would be worth the time and effort it took to document them (Table 3).

DISCUSSION

This study found that cognitive services were being provided in a wide spectrum of categories both related and not related to processing a prescription. Some argue that cognitive services are part of a pharmacist's required responsibilities and, therefore, are financed through the regular dispensing fee. However, close examination of the fifteen categories of cognitive services identified in this study revealed that most of these categories describe services that exceed those that are mandated by the law. In most cases, prescribers in this study implemented the cognitive service recommendations. This finding provides further justification for the payment for these services.

The provision and documentation of cognitive services was shown to be a time-consuming activity. No attempt was made to separate the time spent in the actual provision of the services vs. the documentation of the activity. However, in many practice settings it may be difficult to justify spending time to document cognitive services in order to pursue payment. Computer software can be adapted to aid in the documentation and billing for cognitive services and can also decrease the amount of time necessary to perform the referencing required to perform and justify some cognitive services.

One way to stimulate more documentation and subsequent submission for payment of cognitive services would be payment based on the relative value of a cognitive service rather than time spent to provide the service. Research has recently been conducted to develop a relative value scale for pharmacists' cognitive services (20). Payment based on relative value would possibly stimulate pharmacists to explore strategies for documenting cognitive services in a time-efficient manner.

The pharmacists in this study indicated that provision of cognitive services would not adversely effect the pharmacist/physician

TABLE 3. Mean Responses to Attitudinal Items About Cognitive Services.

Item	n	t	Corrected item-total correlation	mean (s.d.)
The physicians who write the prescriptions I fill would be receptive to reading a description of the cognitive service I provided and provide their signatures verifying the service was of benefit to their patients.[a]	22	4.33*	0.57*	3.32 (1.32)
The income this store would receive from third parties for cognitive services is not worth the time and effort it takes to document them.[b]	22	2.32*	0.29	1.59 (1.44)
Documenting cognitive services will emphasize to my doctors the errors they have made and therefore jeopardize my working relationship with them.[a]	22	5.37*	0.68*	1.27 (1.16)
Documenting cognitive services will foster a team approach to health care with the physicians and nurses with whom I work.[a]	22	2.67*	0.41*	3.95 (0.95)
Physicians will not be receptive to verifying that the cognitive services I provide benefit their patients because they will feel it usurps their authority.[a]	22	10.12*	0.71*	2.14 (1.52)

*significant at $p < 0.05$.

[a]This item was included in the final scale.

[b]This item was not included in the final attitude scale because the corrected item-total correlation is low and not significant. It is retained for independent reporting based on the significant t-test.

relationship. This attitude may not be reflective of the attitudes of all practicing pharmacists. The pharmacists surveyed were preceptors to Doctor of Pharmacy students. For the same reason they were selected to be role models and adjunct faculty, it can be assumed that they may be more confident than the average pharmacist in asserting their role as provider of cognitive services. Physicians who have graduated more recently have been trained alongside pharmacists with a clinical focus. It can be predicted that these physicians will not only be increasingly receptive to pharmacist provision of cognitive services but come to expect this activity.

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