

PAYMENT OF PHARMACISTS FOR COGNITIVE SERVICES

Results of the Washington State C.A.R.E. Demonstration Project

by:

Dale B. Christensen, Ph.D., Principal Investigator, and
Garth H. Holmes, **R.Ph.**, M.A., Principal Investigator

In collaboration with C.A.R.E. Demonstration co-investigators and staff:
Amber **Andrews**, M.P.H.; C. Holly **Andrilla**, M.S.; Eric Bell, M.B.A.;
William E. **Fassett**, Ph.D.; Robert Hansen, **Pharm.D.**; Nancy Neil, Ph.D.;
Rod Shafer, R.Ph., Dave H. Smith, M.H.A., and **Andreas Stergachis**, Ph.D.

Federal Project Officer: Kathleen Gondek, Ph.D.

Medical Assistance Administration
Department of Social and Health Services
State of Washington

and

Department of Pharmacy, School of Pharmacy
University of Washington
Seattle, WA 98195

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EXECUTIVE SUMMARY

The Washington CARE Project was a demonstration project authorized under OBRA-90 legislation to assess the impact of a financial incentive on pharmacists' performance of cognitive services. The premise of this demonstration was that direct reimbursement for pharmacists' cognitive services will remove financial barriers associated with pharmacists' provision of these services and result in increased performance of cognitive services, with a subsequent impact on costs and outcomes.

Data for the demonstration pertain to three groups of pharmacies located throughout the state of Washington, each of which contained approximately 100 pharmacy sites: a documentation and reimbursement group (Croup A), a documentation-only group (Croup B), and a silent control group (Croup C). Pharmacists in Croups A and B documented cognitive services for Medicaid patients using a problem-intervention-result format developed specifically for this project. The demonstration phase lasted **from** February 1994 through September 1995 and resulted in the documentation of 20,240 cognitive service events.

The main findings of the demonstration are:

- A financial incentive for the performance of cognitive services resulted in more such services being documented than occurred in the absence of financial incentive. Results showed that Croup A pharmacies (with financial incentive) consistently reported higher cognitive service intervention rates than did Croup B (no financial incentive) participants. Over the **18-month** course of the demonstration, Croup A pharmacies reported a low of 1.3, and a high of 2.4 cognitive service interventions per 100 Medicaid prescriptions dispensed. In contrast, Croup B pharmacies' rates ranged from a low of 0.7 to a high of 1.0 cognitive service interventions per 100 Medicaid prescriptions dispensed.
- About half of all documented cognitive services problems were for patient-related problems, while 32.6% were for drug-related problems, 17.6% for **prescription-**related problems, and 1.4% for non-drug related problems. These findings contrast with the general notion that pharmacists' activities are focused on identifying and resolving only prescription- and drug regimen-related problems. Additionally, most on-line prospective DUR systems focus on problem identification based on a review of the prescription (e.g., high dose), or drug regimen (e.g., therapeutic duplication, drug-drug interaction), but are less well equipped to identify **patient-**related and non-drug related problems (e.g., drug-taking compliance). Our results suggest that as many as half of all problems documented by pharmacists in this demonstration were ones that, **left** to a computerized DUR system, would likely have gone unidentified.

- A drug therapy change of some type occurred as a result of 28% of all cognitive services documented in this demonstration. However, changes were rarely due to generic or therapeutic substitution and almost always followed communication with the prescriber.
- For each cognitive service associated with any type of drug therapy change, the average downstream drug cost savings was estimated to be \$13.05. There was no statistically significant difference between study groups in the amount of cost savings per change-related cognitive service event. Cost calculations are inclusive of dispensing and cognitive service fees and reflect drug cost savings to the **Medicaid** program before rebates.
- Cost savings **differed** by type of drug therapy. Cognitive services resulting in a drug or drug regimen change produced average savings of \$17.70. Per cognitive service, discontinuing a drug resulted in an average \$36.88 savings, while a decision not to dispense a prescribed drug saved \$40.70. Decisions to add drug therapy created costs (offsetting savings) that averaged \$71.32 per cognitive service. Savings were accrued over time (up to 1 year) for drug or drug regimen changes and additions, but not for drug discontinuations based on prior **refill** history or decisions not to dispense a prescription. Cost calculations are inclusive of dispensing and cognitive service fees and reflect drug cost savings to the Medicaid program before rebates.
- Considering only cognitive services resulting in drug therapy change, there was an estimated overall savings in drug costs to the Medicaid program of over \$78,000 after payments for cognitive services were deducted (Croups A and B). When the program as a whole is considered (including costs for cognitive services not resulting in drug therapy changes), the estimate net savings was about \$37,000. Computed on a per-prescription basis, the overall net impact of the demonstration was a savings of \$0.02.
- Among Croup A pharmacies, the fees paid for cognitive services were easily recovered when only cognitive **services resulting** in drug therapy changes were considered, but were not quite recovered when costs were spread across all cognitive services (in particular, those that did not result in a drug therapy change). When spread across all prescriptions dispensed, the cost was less than \$0.01 per prescription.
- Estimated cost savings do not **include** any impact on the cost of other types of medical care services that may have been avoided (or utilized) by the patient as a result of the cognitive service intervention. While it is beyond the scope of this report, a further assessment of the impact of cognitive services on the use and costs of other medical care services is underway.

- Documentation submitted by **CARE** project pharmacists showed that cognitive services took, on average, 7.5 minutes each to perform. Less than 6% took 20 minutes or more of pharmacists' time. This finding is consistent with those reported in the few other studies that have reported cognitive service intervention times.
- Cognitive services intervention rates as a percent of dispensed prescriptions rose over time. Based on our experiences with this demonstration, we speculate that performance of cognitive services represents a fundamental shift in community pharmacists' professional and practice orientation that takes time to accommodate and integrate into everyday practice.
- Despite pharmacists' generally favorable attitudes and orientation toward the provision of cognitive services, results also suggest that the practice environment of the pharmacy itself may have a substantial influence on whether and to what extent pharmacists will perform cognitive services. Specifically, results suggest that an explicit and well-defined documentation policy; a workload volume that allows for time spent performing cognitive services; and supportive relationships between pharmacists, patients and prescribers may go hand-in-hand with financial incentives to motivate pharmacists to provide cognitive services.

Based on this demonstration, we conclude that the implementation of a prescription drug-related cognitive services documentation and reimbursement system is feasible from the perspective of a state Medicaid program; that it will be successful in identifying and resolving at least some, but probably not all, drug therapy problems; and that it has the potential for generating cost savings at least equal to program costs.

Demonstration of a Pharmacist Cognitive Services Documentation and Financial Incentive Reimbursement System: The Washington State CARE Project

1 .O Introduction

In response to the Omnibus Budget Reconciliation Act of 1990 (**OBRA-90**), the Health Care Financing Administration (**HCFA**) issued a request for proposals to address three areas related to the provision of drug-related services for Medicaid beneficiaries: 1) the effect of reimbursement of pharmacists for cognitive services, including compensating pharmacists for not dispensing a prescription when medically appropriate, 2) on-line prospective drug use review technology and its impact on pharmacy practice, and 3) the effects of academic detailing. Ultimately, two projects were funded by HCFA: one in Washington State focusing on cognitive services reimbursement, the other in Iowa focusing on evaluating an on-line, prospective drug use review, or DUR system. In this report we describe the State of Washington demonstration project (hereafter referred to as CARE), its evaluation objectives, methodology and major findings.

Cognitive services are distinct from dispensing services provided by a pharmacist (e.g., product selection, packaging, labeling, counseling). Cognitive services are defined as: "... those services provided by a pharmacist to, or for a patient or health care professional that are either judgmental or educational in nature" (**Kusserow 1989**; Christensen, Fassett and Andrews 1993). Cognitive services are value-added in the sense that they generally extend beyond the minimum requisite dispensing obligations of pharmacists. Cognitive services are considered a component of pharmaceutical care, which has been defined as a systematic process in which pharmacists identify and resolve or prevent patients' actual or potential drug-related problems (**Hepler and Strand 1990**).

For example, consider the patient who requests a refill of a beta-agonist inhaler prescription. The pharmacist notices that the prescription has an unlimited one year refill authorization and, from a review of the patient medication profile, determines that six refills have been received by the patient in the past four months. A basic level of service might involve refilling the prescription and possibly inquiring about any questions or problems the patient might have with respect to usage. A cognitive service might involve asking the patient about the frequency of asthma episodes, checking metered dose inhaler administration technique, providing peak flow meter training and contacting the prescribing physician to inquire about possibly adding an inhaled **corticosteroid** to the patient's regimen. As a result of this intervention drugs may be added or deleted from the patient's regimen, the dosage regimen may change, or the patient may be better educated about his or her drug therapy and illness state.

There is considerable evidence that pharmacists can, and do perform pharmaceutical care services. Services have been documented in a variety of specialized

settings such as hospital outpatient clinics, health maintenance organizations (HMOs) and specialty centers for targeted patients and disease states (Bjornson et al. 1993; **Borgsdorf, Maniano** and Knapp 1994; Britton & Lurvey 1991; Brown, Helling and Jones 1979; Chenella et al. 1983; Chrischilles, Helling and Aschoff 1989; Christensen et al. 1981; Cohen et al. 1985; Conte et al. 1986; Dobie & Rascati 1994; **Fincham, Hospodka & Scott** 1995; **Forstrom** et al. 1990; Garabedian-Ruffalo et al. 1985; Gray, Garabedian-Ruffalo and Chretien 1985; Hatoum et al. 1988; Haxby, **Weart** and Goodman 1988; Hepler 1990; Knowlton & Knapp 1994; Mead and **McGhan** 1988; Smith & Christensen 1996; Tamai et al 1987). Further, demonstrations in community pharmacy settings have **documented** pharmacists' potential drug therapy problem detection and intervention activities (Andrews 1993; **Fincham, Hospodka & Scott** 1995; **McKenney** and Witherspoon 1985; Poirier 1992; Rupp et al. 1988; Rupp 1988; Rupp, **DeYoung** and Schondelmeyer 1992; Rupp 1992).

A prescription based fee-for-service system provides pharmacists with a financial incentive to dispense prescriptions but a disincentive to provide cognitive services, since this activity may divert time from dispensing. The overarching goal of this study is to investigate whether direct reimbursement for cognitive services will remove these financial barriers and result in an increased performance of cognitive services by pharmacists.

1.1 Goals and Objectives

CARE is an acronym that stands for Cognitive Activities and Reimbursement Effectiveness. The primary objectives of the Washington CARE project were:

1. to design, implement, and operate a resource-based, outcomes-oriented system of payment to pharmacists for their cognitive services provided to Medicaid enrollees;
2. to assess the effects of payment of pharmacists for cognitive services on
 - a. the number and type of drug-related problems identified and corrected or resolved, and
 - b. the cost of drug therapy; and
3. to assess pharmacist and pharmacy factors associated with the provision of cognitive services.

2.0 Background and Significance

2.1 Rationale

Retail sales of prescription and nonprescription drugs in the United States were estimated at \$59.1 billion (U.S. dollars) in 1994 (Genuardi, Stiller & Trapnell 1996). While expenditures for prescription drugs represent only a small percentage of overall health care expenditures, major changes in the financing of prescription drugs have occurred over the past 15 years. For example, out of pocket payment for prescription drugs has declined from 66% to 42% of all prescriptions. In 1994, Medicaid and other public programs were the source of payment for about 19% of all payments for

prescription drugs, and private sector insurance programs were the source of payment for 39% of all payments for prescription drugs. Nationally, the Medicaid program spent approximately \$16 billion for prescription drugs in 1994 (HCFA 1996). Concomitant with the shift to third parties as a payment source, attention has been directed at drug policies relating to issues of coverage, reimbursement, quality assurance and cost containment.

There is ample evidence that drug benefit programs cannot be effectively managed by merely arranging for a network of dispensing pharmacies and a prescription **claims-**based reimbursement system. While the mortality, morbidity, prevalence, and incidence rates of drug-related problems at local, regional, and national levels are not known, inappropriate drug therapy is now recognized as a serious problem in the United States (Manasse 1989). The cost of preventable drug-related morbidity and mortality in the ambulatory setting has been estimated at \$76.6 billion in one survey (Johnson & Bootman 1995).

The risk of inappropriate drug therapy is particularly high for vulnerable populations, such as the elderly, children, and women of child-bearing age--all of which are populations serviced by Medicaid programs. While it is unclear whether due to inappropriate drug therapy, it is estimated that 3-5% of hospital admissions result from medication toxicities (Jay, Eynon and Javitz 1991). The elderly are particularly vulnerable to noncompliance problems. Col, **Fanale** and Kronholm (1990), for example, found failure to comply with drug therapy to be the reason for admission in 11% of elderly patients admitted to an acute care hospital. One type of inappropriate drug therapy is patient noncompliance, which is estimated to lead to excessive hospitalizations and total costs estimated at \$8.5 billion, or 1.7% of total health care dollars in 1986 (Maronde et al. 1989; Sullivan, Kreling and Hazlet 1990). Other forms of inappropriate drug therapy are due to less than optimal prescribing decisions by physicians, and include the use of drugs that are largely ineffective; dosages or combinations that are pharmacologically irrational; duplicative therapy; and the use of newer, more toxic, and more expensive agents in lieu of **useful** older drugs (Avorn and Soumerai 1983; OIG 1990). As major payers for pharmaceuticals, the federal and state governments are in a position to provide incentives for improving the quality and efficiency of drug utilization.

About 25 years ago the Task Force on Prescription Drugs issued its report concerning the problems of drug prescribing (DHEW 1969). Many suggestions were made in this document with the aim of reducing unnecessary, costly, and inappropriate drug utilization. The report defined appropriate prescribing as "the right drug for the right person for the right disease at the right dose at the right time," and encouraged the development of systems of drug utilization review (**DUR**) to monitor prescribing in medical practice settings where this was feasible--in a manner similar to that mandated by provisions in the Omnibus Budget Reconciliation Act of 1990 (**OBRA-90**).

The role of pharmacists in assuring appropriate drug use is critical. Though there seems to be ample evidence that some pharmacists are performing at least some types of cognitive services some of the time, the challenge is one of developing expectations and incentives that will substantially improve such performance. Specifically, the CARE

Project was designed to explore some of the factors that may inhibit, or encourage pharmacists to provide cognitive services. Among these factors are financial incentives, education and training, and professional attitudes.

Financial incentives may play a central role in encouraging pharmacists' provision of cognitive services, especially given the current, "reform-oriented" medical and pharmacy practice environment (in which the proportion of prescriptions dispensed under third-party financing, and reduced pharmacists' dispensing fee arrangements has increased dramatically). Clearly, a prescription based fee-for-service system provides pharmacists with a financial incentive to dispense prescriptions but a disincentive to provide cognitive services, since this activity may divert time from dispensing (under current law and regulations, Medicaid reimbursement to pharmacists is based on the cost of the drug plus a dispensing fee). Thus, a main premise of this study is that direct reimbursement for cognitive services **will** remove these financial barriers, resulting in an increased performance of cognitive services.

As with financial barriers, the lack of training and education may also inhibit pharmacists' performance of cognitive services. This could happen in at least two ways. First, many pharmacists may be deficient in their understanding of disease-specific or drug therapy management guidelines. Second, pharmacists may either not know how to apply these guidelines, or may not know how or why to document their cognitive service activities.

Access to an adequate patient database is a third potential barrier. To cite one example, nearly all pharmacies have computer systems, but their capacity to detect potential problems in drug therapy differs considerably. Most pharmacy computer systems display warning signals for potential drug therapy problems, but many do not do so in a selective, or context-sensitive manner. For example, a false positive warning message may appear because the patient is no longer taking one of two conflicting drugs, or the warning may be for rare or clinically insignificant problems. Conversely, the lack of a warning may reflect a false negative situation, since the computer cannot detect, for example, problems of concomitant drug therapy **from two non-affiliated** pharmacies. Thus, pharmacists may become desensitized to these alerts and cease responding to them.

Finally, pharmacists' attitudes themselves may serve as barriers. Pharmacists remain highly trained but underutilized. Years of a dispense-as-usual professional lifestyle may make the practice routine, if not **unsatisfying**. A comfort zone is created, one that may only change with the explicit recognition by payers of an alternative practice style. Even then, the change is likely to be gradual.

2.2 Pharmaceutical Care and Cognitive Services

Pharmaceutical care is defined as that component of pharmacy practice which entails the direct interaction of the pharmacist with the patient (or the prescriber) for the purposes of caring for that patient's drug-related needs (Hepler 1990). Hepler and Strand (1990) **further** note that pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life.

Pharmaceutical care is a systematic process in which pharmacists **identify** and resolve or prevent patients' actual or potential drug-related problems. It recognizes the importance of cognitive services, defined as:

. . .**those** services provided by a pharmacist to, or for a patient or health care professional that are either judgmental or educational in nature rather than technical or informational. Examples of such services are patient education programs, drug blood level monitoring, chronic disease monitoring, and counseling (**Hepler & Strand 1990**).

Through the provision of cognitive services pharmacists may prevent potentially **harmful** health outcomes and enhance the impact of pharmaceutical care. Over time this perspective has gained numerous advocates, including the Department of Health and Human Services' Office of the Inspector General (**OIG 1990**), Ministry of Quebec (**Poirier 1992**), and pharmacy's numerous professional organizations. To date, the value of a cognitive service as a component of pharmaceutical care has been better demonstrated in settings such as hospitals and nursing homes than in community-based settings. The pharmacist's clinical roles were first to evolve in institutional settings, where pharmacists have been engaged in drug therapy reviews, pharmacokinetic-based dosage adjustments, and patient education for more than two decades. Development of these roles has paralleled policies and recommendations of accrediting bodies such as the Joint Commission on Accreditation of Health Care Organizations (**JCAHO**). In general, these agencies have moved sequentially toward broader pharmacy system responsibilities to assure appropriate drug prescribing and use within the institution. They have developed quality assurance criteria, which have focused on processes and outcomes of care.

There have been, however, several studies of pharmacists' cognitive services conducted in community pharmacy settings (**Chenella et al. 1983; Dobie & Rascati 1994; Evans et al. 1976; Fincham, Hospodka & Scott 1995; Garabedian-Ruffalo et al. 1985; Knowlton & Knapp 1994; McKenney and Witherspoon 1985; Owerback, Winters and Villella 1981; Robinson, Lopez and Stewart 1978; Rupp, DeYoung and Schondelmeyer 1992**). The incidence and types of cognitive services routinely provided by community pharmacists have been reported in a study in Indiana and a five-state study which included Washington state (**Rupp et al. 1988**). These studies indicate that cognitive services improve pharmaceutical care and reduce the cost of health care. Nelson has identified the lack of financial incentives as the primary reason for pharmacists not routinely providing cognitive services (**Nelson, Zelnio and Beno 1984**).

A study conducted in Washington state in 1973, supported by PAID Prescriptions, a third party payment plan, examined the impact of paying pharmacists a fee to detect potential adverse drug reactions (**Spaulding, Hefner and Campbell 1976**). The study measured the number of potential adverse drug reactions that could have been avoided by **pharmacists and physicians for patients whose prescriptions were covered by the PAID Prescription Plan**. The types of adverse drug reactions identified were therapeutic duplication, overuse of medication, inappropriate therapy, drug-induced disease and drug-drug interactions. Results of the study indicated that it is beneficial for the underwriters of

health programs to pay pharmacists for detecting potential adverse drug reactions and not dispensing unnecessary prescriptions.

There have also been studies conducted to identify the cognitive services and interventions performed by pharmacists in managed care settings (Christensen et al. 1981; **McGrath** and Mahoney 1988, Mead and McGhan 1988; **Forstrom** et al. 1990; Abramowitz and Mansur 1987; **D'Agnese** 1984). One such study conducted at Group Health Cooperative in Washington State documented drug prescribing and patient misuse problems that were detected by clinic pharmacists (Christensen et al. 1981). Outpatient problem detection and intervention rates ranging **from** 1.1% to 4.9% over a **16-month** period. The highest intervention rates occurred late during the study period, possibly reflecting a lag time in gearing up to routinely perform and document these activities. Problems were differentiated into drug-drug interactions, over and under-use, prescribing decision-related, and other adverse effects. In 9% of all problems and in 44% of prescribing problem interventions, the outcome of the pharmacist intervention 'was a change in drug, strength, or directions for use. Between 6.0 and 7.8 minutes of pharmacist time was expended to correct these problems. Based on the 1980 pharmacist hourly wage of approximately \$12, the study estimated that the average direct cost per problem resolved was \$1.43.

Studies of the prescribing habits of providers in **HMOs** have shown that pharmacist interventions have a positive, cost-effective impact on the appropriate use of specific drugs. Defined inappropriate use of histamine-2 receptor blocking agents and sucralfate was studied in a HMO where pharmacist intervention and educational programs were implemented (Mead and McGhan 1988). **This** study reported a significant reduction in the inappropriate use of these drugs **from** 81.5% to 42.4% in the 10 months following a comprehensive pharmacist intervention and education program. In addition, the mean number of authorized refills was reduced **from** 3 to 1.3 during this period.

Forstrom et al. (1990) found that HMO physicians accepted **pharmacist-**recommended action on the consultations for hypertensive patients 77% of the time in a study of antihypertensive drug therapy, resulting in a significant overall decrease in the proportion of patients continuing to use target drugs after six months, but a non-significant reduction in the cost of those drugs. Other types of pharmaceutical services provided by pharmacists have also been shown to result in cost-effective health care. These include patient education to improve drug therapy compliance, monitoring drug therapy, pharmacist prescribing, providing drug information services and conducting drug use reviews (Abramowitz and Mansur 1987).

In a study conducted in the primary care setting, **Chrischilles** et al (1989) found significant differences in prescribing appropriateness among family practice residents exposed and not exposed to clinical pharmacist interventions. Results of this study indicated pharmacist interventions were associated with a reduction in the cost of acute medications prescribed by physicians,

A survey conducted in 1984 found that hospital pharmacists resolved **prescription-**related problems 2.9% of the time and community pharmacists resolved similar problems

with prescriptions 2.4% of the time (D'Agnese 1984). In 1988, a study of community pharmacists' cognitive services activities in Indiana found that 2.6% of all new prescriptions required a pharmacist to intervene to resolve prescribing errors (Rupp 1988). The researchers of this study estimated the economic impact associated with the pharmacist intervention and determined pharmacists added \$7.15 in value per error resolved.

A multi-site community pharmacy study conducted in 1989 found approximately 1.9% of 33,011 new prescriptions screened were associated with prescribing errors that required a pharmacist to intervene and correct or resolve the problem (Rupp, DeYoung and Schondelmeyer 1991). These problems were identified to be errors of omission, errors of commission, drug interactions and consultations with patients and health care providers. Washington State was included in this multi-site study, where the incidence of pharmacist interventions was found to be at a high of 3.4%. This study estimated the time required to resolve prescription-related problems by pharmacists and, based on pharmacists' average salaries at the time, determined that these cognitive services were valued at \$2.32 per prescription. The study further estimated that \$76,615 in health care costs were avoided as a result of cognitive services provided by pharmacists.

Many community pharmacists routinely provide patient education and counseling to improve drug therapy compliance and monitor new and refill prescriptions for potential therapeutic concerns (Abramowitz and Mansur 1987). These services have been shown to be valuable in other pharmacy settings and have been reimbursed by third party payers. For years it has been asserted that the key to reimbursement lies with the pharmacists' ability to document the costs and associated benefits of the pharmacy services provided (Smith and Weiblen 1979). Therefore, the establishment of the incidence and value of cognitive services in community pharmacies is essential.

One recent, comprehensive investigation of community pharmacists' cognitive services and their economic value was conducted in Washington state in 1990-1991 (Andrews 1993). In this study, community pharmacists' cognitive services were required in 2.3% of the 146,919 prescriptions screened to resolve prescription-related problems. The study documented 3,364 pharmacist interventions, of which 23.2% were on behalf of Medicaid recipients. Overall, community pharmacists' interventions were found to decrease the average cost of prescriptions by 20.4% in 2,200 of the prescriptions, resulting in drug cost savings of more than \$10,700 that were attributable to pharmacists' cognitive services. In addition, the short-term cost of medical care avoided due to pharmacists' cognitive services and interventions during the study was estimated to be between \$262,000 and \$393,000.

Results from studies such as these indicate that pharmacists create **economic** value by performing cognitive services. In a substantial number of instances, it can be concluded that these interventions lead to improvements in pharmaceutical care, overall health for patients, and the overall cost-effectiveness of medical care -- at least in some environments. However, many of these prior studies were conducted in specialty settings (e.g., HMO's, clinics), in few selected sites, and/or over relatively short periods of time. They often lacked the methodological rigor of a control group, or a "before- and after-"

study design. Thus, the ability to extrapolate the results of these studies of cognitive services to a community-based pharmacy practice setting is limited.

2.3 Barriers to the Performance of Cognitive Services

Having recognized unmet drug therapy needs, many leaders in pharmacy now advocate a professional role for pharmacists that extends beyond traditional distributive functions to include functions that aim to improve the quality of patients' lives. This new professional role, which has been described as "pharmaceutical care," expands the range of pharmacists' attention to include not only the drug product, but the patient and patient advocacy as well. Pharmacists' efforts, however, may be hampered by resource-related barriers (e.g., lack of time, personnel, or financial reimbursement), system-related barriers (e.g., lack of organization within pharmacy departments), educational barriers (lack of knowledge or skills), informational barriers, management-related barriers, and/or pharmacist-related barriers (e.g., attitudes and beliefs) among others (Hepler and Strand 1990; Penna 1990; Knapp 1979; Baker 1979; May 1993; Swift 1993; Louie and Robertson 1993).

Only a few of the articles in the literature suggesting possible barriers to the performance of pharmaceutical care and the provision of cognitive services have examined the incentives and barriers actually encountered in pharmacy practice. In one study of 590 community pharmacies in the United States, for example, Miller and Ortmeier (1995) examined the relationship between the number of pharmacy services offered by a community pharmacy and several motivating factors, such as the importance of particular services to the provision of pharmaceutical care; the perceived importance of professional reward, compliance with legal or contractual requirements of third party payers, and financial reward; and perceived barriers to the provision of pharmaceutical care services. Results showed a positive relationship between the number of pharmacy services offered and the percentage of private-pay prescriptions processed and an inverse relationship between the number of pharmacy services offered and the percentage of prescription orders processed for all third party payment plans, including Medicaid. Financial incentives were the most important motivator for providing services. The greatest perceived barrier to the provision of cognitive services, in fact, involved financial incentives for dispensing drug products rather than providing cognitive services.

Raisch (1993) examined community pharmacists' perceived barriers to the performance of cognitive services and related these to documented occurrences of two specific services (patient counseling and interacting with prescribers). In this study, the most important perceived barriers to the counseling of patients included excessive workload, lack of privacy, patient attitudes, and store layout. Rates of provision of counseling (the number of patient counseling events observed over a 40 hour periods/ the number of prescription filled) were inversely related to the perceptions that **workload** and peer pressure were barriers. These pharmacists indicated that the most important barriers to interacting with physicians were the difficulty of contacting them, negative physician attitudes toward pharmacist recommendations, workload, and lack of patient information. Rates of interacting with prescribers (the number of prescriber interactions over a 40 hour

period/ the number of prescriptions filled) were related to job satisfaction, satisfaction with prescriber interactions, and satisfaction with patient counseling.

Rather than profile pharmacists on the performance of specific services, Sisson and Israel (1996) developed an index of pharmaceutical care activities to examine whether such a composite profile of pharmacists' activities was associated with various factors purported to enhance or inhibit the delivery of pharmaceutical care. This study determined that Virginia pharmacists who scored high on an index of self-reported pharmaceutical care activities were more likely to practice in rural, **independently-owned** pharmacies and to have good rapport with patients and local physicians.

In addition to identifying barriers (both potential and demonstrated) to the provision of pharmaceutical care and cognitive services, attempts have been made to characterize pharmacists' attitudes toward the pharmaceutical care paradigm and the effect of the performance of cognitive services on the future of pharmacy. Hansen and Ranelli (1994), for example, found general support among Florida pharmacists for the DUR requirements of the OBRA-90 legislation and, further, found that this support was related to pharmacists' perceptions of their professional responsibility to society. In a study of Illinois pharmacists, Kong (1995) reported that pharmacists generally believed that the call for pharmaceutical care would have a positive impact on the future of pharmacy and that this belief was associated with pharmacists' commitment to employers and to pharmacy as a career. Coworker support had a positive effect on perceptions of pharmaceutical care, while increasing age was associated with more negative views of the impact of the pharmaceutical care movement on the future of pharmacy.

Absent from the literature are attempts to measure the performance of a wide range of cognitive services (as opposed to self-reports or the performance of a few, specific cognitive services) and to relate the number of documented cognitive services to pharmacy- and pharmacist-related factors that may act as incentives or barriers. One aim of this demonstration project is to address this gap by examining which factors are associated with (1) the decision to provide cognitive services and (2) the volume of cognitive services provided at both the pharmacy and pharmacist level.

2.4 Reimbursement for Cognitive Services

There is little empirical research documenting the effect of monetary incentives for outpatient pharmacy interventions. Surveys of pharmacy clients' willingness to pay for hypothetical services have shown generally positive results, and anecdotal **reports** suggest that pharmacists, in individual cases, have established such payment arrangements. Several studies have documented consumers' willingness to pay for cognitive services. In general, these studies have reported that consumers are willing to pay between \$1 and \$10 for personal **counseling** at the pharmacy, and even higher amounts for home visits (Carroll et al. 1987; Szeinback 1992).

The Canadian province of Quebec has in place a provincially-sponsored system which pays pharmacists a separate fee for offering their professional opinion about the

appropriateness of a prescription for a given patient than for dispensing the prescribed medication (**Dumas** and **Matte** 1992; **Poirier** 1992). The Quebec Health Insurance Board defines a “pharmaceutical opinion” as: “...an opinion given at the request of the prescriber or on the initiative of the pharmacist...[It is a] reasoned opinion respecting a beneficiary’s [i.e., patient’s] past pharmacotherapeutic history drawn up under the pharmacist’s authority, or concerning the therapeutic value of a treatment or series of treatments entered on a prescription.” The criteria under review in a pharmaceutical opinion are drug interactions, incompatibilities, contraindications, incompatibility with treatment, over- or under-consumption, and concurrent use of several drugs prescribed by more than one prescriber. However, to be reimbursable it must concern a drug covered under the Prescription Drug Program and include a recommendation intended to modify or interrupt the treatment prescribed. Pharmacists are authorized to be reimbursed for refusing to fill a prescription under a separate rule. In each instance, a claim for reimbursement may accompany the documentation of the **opinion/refusal** to the Board. Quebec found that increasing reimbursement levels resulted in a substantial increase in the number of opinions filed. Over time the number of documented pharmaceutical opinions and refusals to dispense has risen, in part in response to increases in fees paid to pharmacists.

The provision of cognitive services to Medicaid patients is a required component of prospective DUR, as defined by OBRA-90. While it is believed that many **pharmacists** perform cognitive services presently as a function of their daily routine, a higher level of cognitive services is expected to be performed with additional reimbursement for professional time and services. Pharmacists argue that it is time consuming to research all of the drug interactions, contraindications, etc., for each medication, to interact with physicians when a drug therapy problem is suspected, and to counsel a patient. Additionally, many pharmacists believe they should be compensated for instances in which a prescription was not dispensed but professional time was expended (OIG 1990; Medicaid Pharmacy Bulletin, 1992). This study examines several of these beliefs and assertions, by examining the impact of payment as an experimental variable on pharmacists’ cognitive services documentation behavior.

3.0 Design of the Demonstration

3.1 Overview

Major features of the demonstration design are (1) the randomization of eligible pharmacies making application into two groups: one group documenting cognitive services and receiving the intervention (i.e., payment for cognitive services), and one group documenting cognitive services but receiving no payment; (2) inclusion of a set of non-applicant control pharmacies; (3) data gathering through a combination of **manually-completed** forms and automated data collection program added to the applicant pharmacy’s prescription processing software; and (4) the use of secondary data to assess drug utilization patterns and the use and cost of other health care services.

3.2 Study Sample

Our design utilized three groups of approximately 100 pharmacies each (see Figure 1). The Treatment Group (“Group A”) performed and documented cognitive service interventions, received a fee for each intervention, and received a monthly stipend (\$40) for their participation in the demonstration. Control Group pharmacies (“Group B”) received the monthly participation stipend, but performed and documented cognitive service interventions without reimbursement. A second, silent Control Group (“Group C”) received neither payment (participation stipend or fee-for-service) nor documented cognitive service interventions.

Figure 1. CARE Project Study Design

Group	Activity	Incentive
Treatment (Group A)	<ul style="list-style-type: none"> • document cognitive services • bill Medicaid for cognitive services 	<ul style="list-style-type: none"> • participation fee (\$40/mo.) • cognitive services fee (\$4 or \$6)
Control (Group B)	<ul style="list-style-type: none"> • document cognitive services 	<ul style="list-style-type: none"> • participation fee (\$40/mo.)
Silent Control (Group C)	<ul style="list-style-type: none"> • none (Rx claims reviewed) 	<ul style="list-style-type: none"> • none

All pharmacies in the State of Washington were eligible for the study if they served primarily ambulatory patients, were not part of a **staff-model** health maintenance organization, and dispensed at least 50 Medicaid prescriptions per month. All volunteering pharmacies meeting these criteria were invited to participate. Enrolled pharmacies were assigned to either Group A (payment) or Group B (no payment) according to a cluster sampling algorithm (described subsequently). Study group assignment (i.e., to Group A or Group B) occurred only **after** the pharmacy made a formal

commitment to enroll in the study. Pharmacies were enrolled in 3 waves, as shown in Figure 2.

Figure 2
CARE Pharmacy Enrollment

Date	Total Enrolled	Group A	Group B
February 1994	160	86	74
April 1994	193	107	86
September 1994	200	110	90

Ultimately, 11 pharmacies (5.5%) disenrolled from the study (6 from Group A and 5 from Group B), leaving 189 participants. Of these 189, most were independent pharmacies (63%). The remainder included chain-affiliated pharmacies (30%), not-for-profit (non-government) sites, including hospital/medical-center outpatient pharmacies (4%), as well as several (3%) sites that were either government-affiliated or could not be classified exclusively into any of the above categories. Data collection lasted through September 1995, thus assuring a minimum 12-month observation period for each pharmacy. The study demonstration period was 20 months, from February, 1994 through September, 1995. All pharmacies were enrolled for at least 12 months.

3.3 Sample Size Determination

A primary measure of interest was the performance of cognitive services as evidenced by the rate of documentation of potential drug therapy problems. The study was powered to detect an absolute difference of 0.5% between Groups A and B in the rates of potential drug therapy problems reported per 100 Medicaid prescriptions dispensed.

Assumptions for sample size estimates were drawn from literature-based reports of pharmacists' drug-related problem detection rates (Christensen et al. 1981; Poirier 1992; Rupp 1988). These reports were based on studies conducted across several different geographic areas, pharmacy settings, and time periods. Each investigation used slightly different definitions of cognitive services; however, all reported cognitive services as occurring within a relatively narrow range (1-5%) of dispensed prescriptions. To protect against a potential dropout rate of 20% and to assure a minimum sample size per cell for sub-group analyses according to pharmacy characteristics, we elected to enroll a sample of 100 pharmacies per study group.

3.4 Cluster Sampling

Cognitive services, by their nature, may have effects that go beyond the immediate pharmacist-patient interaction. For example, a pharmacist's communication with a prescribing physician during the course of a cognitive service may influence physicians' subsequent prescribing practices. In terms of a community-based demonstration such as this one, such altered prescribing practices would not only affect prescriptions processed by pharmacies in the treatment group, but those processed by non-treatment group

pharmacies in the area as well. To the extent that any change(s) in physician prescribing practices would influence the demonstration by reducing the need for subsequent pharmacist intervention, they would also minimize the likelihood of our observing differences between treatment- and non-treatment group pharmacies. Thus, we developed a cluster sampling technique to minimize the possible effect of what we refer to here as “prescriber influence,” that is, the influence that the cognitive services of a study pharmacist might have on the prescribing practices of the physicians he or she interacts with.

3.4.1 Selection of Groups A and B. The sampling technique was as follows: Medicaid prescription claims data for four evenly distributed months during 1992 were used to create physician-pharmacist linkages based on prescriber and pharmacy identifying numbers appearing on the prescription. Clusters of pharmacies linked to prescribers then became the sampling unit. We allocated clusters to either treatment or control groups using a randomized block design. Blocking criteria were city size (major metropolitan area: yes or no) and urban or non-urban nature of county, classified according to federal guidelines. Pharmacies for the silent Control group (Group C) were selected from all remaining non-participating pharmacies meeting the same eligibility criteria, with the added caveat that they not be strongly linked, or **affiliated** with Group A pharmacies, based on shared prescribers (see below). As with Groups A and B, Group C pharmacies were selected using the randomized block design. The final sample size was: 110 Treatment Group pharmacies (Group A), 90 (Group B) Control pharmacies, and 100 (Group C) silent Control pharmacies.

3.4.2 Selection of Group C. The Group C sample was chosen to serve as an additional control in the CARE study. The rationale for adding Group C pharmacies to the design was to study a group of pharmacies that had neither volunteered for participation in the CARE study nor been asked to document cognitive services. Group C pharmacies were not aware of their observation by the CARE study. Comparisons of Group A pharmacies with Group B sites should distinguish the marginal effect of payment for cognitive services. The addition of Group C served as a baseline for assessing drug utilization patterns, attitudes and practice characteristics of pharmacists, as well as the frequency with which prescriptions were dispensed that failed screening criteria.

A primary goal in selecting pharmacies for inclusion in the Group C pool was to minimize the influence of already participating Group A pharmacies on Group C pharmacies’ performance. For example, assume a Group A pharmacist intervened to correct a problem created by a prescriber who also wrote prescriptions dispensed by a Group C pharmacy. If as a result of the intervention the prescriber were to alter his/her prescribing pattern, then subsequent prescriptions written to **both** Group A and Group C pharmacies would be free of that particular error.

With this in mind, an “affiliation score” was computed for each potential Group C pharmacy. Using 1992 Medicaid claims tapes for the State of Washington, the number of prescriptions linked between a prescriber and any Group A pharmacy was determined. Any prescriber with more than 200 prescriptions per year linked with a Group A pharmacy

was classified as “**affiliated.**” A prescriber with fewer than 200 prescriptions was classified as “not **affiliated.**”

The next step in choosing pharmacies eligible for Group C was to measure the affiliation between any potential Group C pharmacy and prescribers **affiliated** with Group A. This was done by determining an “affiliation proportion,” defined as the number of prescription claims coming **from affiliated** prescribers divided by the total number of claims received by that pharmacy. In order to be eligible for inclusion in Group C a pharmacy could not have more than 25% of its total claims come from **affiliated** prescribers.

Potential Group C pharmacies were selected according to the criteria used to select Group A and Group B pharmacies, namely, location (in one of the five largest cities in the State), and rural/urban county classification as defined by federal guidelines (for **further** detail see sampling description for Groups A and B). Group **C** pharmacies were selected in the same proportion as were Group A and Group B pharmacies. We determined that a minimum sample size of 63 pharmacies would be **sufficient** to detect a difference of 0.5 cognitive services per 100 prescriptions. To allow for sub-analyses, an over-sample of 140 sites was selected in order to achieve a target sample of 100 pharmacies not affiliated with Group A.

3.5 Characterizing Cognitive Services

We adopted a Problem-Intervention-Result format for characterizing pharmacists’ cognitive service intervention activities. We were interested primarily in coding **drug**-related problems that were identified during the course of dispensing, but we also included additional codes for problems not necessarily related to a specific prescription product. **Problem, Intervention** and **Result** codes are detailed in Appendix A.

For study purposes a total of 24 **Problem** codes were identified in three general categories: **prescription-related, drug-related, and patient-related** problems. Prescription-related problems included, among others, suboptimal drug, dose, dosage regimen, dosage form, or duration of use. Among drug-related problems were drug interactions with food, patient comorbid conditions, or other drugs. Patient-related problems included over- and under-utilization, communication difficulties and the “case managed patient.” The latter category was created to address the situation of a patient who is assigned by the State Medicaid agency or referred by the prescriber or a pharmacist to receive special drug-related monitoring or instruction from a pharmacist.

For purposes of this study, we initially considered using the (then current) version 3.2 National Council of Prescription Drug programs (NCPDP) version 3.2 standard for coding pharmacist response to computer system-generated (i.e., On-line Prospective Drug Use Review, or OPDUR) drug therapy problem messages. However we found this coding system to be impractical for our study because: 1) it did not readily allow coding of cognitive services not directly related to OPDUR drug alert problem messages, 2) relatively few pharmacies were equipped to document cognitive services using this system, and 3) the existing Washington State Medicaid program did not use the universal prescription claim code format for processing prescription claims.

Cognitive service codes (CSC) were represented numerically in order to facilitate billing procedures. A sequence of three 2-digit codes was developed to characterize each cognitive services intervention. These CSC's mimic the National Drug Code (NDC) format but are distinguished by their use of "88888" in the manufacturer or labeler field. Thus, the CSC consists of three fields formatted as "88888-PP-II-RR", where:

- PP is the two-digit problem code;
- II is the two-digit intervention code; and
- RR is the two-digit result code.

Also detailed in Appendix A are 11 *Intervention* codes developed to characterize activities pharmacists undertook in problem intervention, including information sources consulted as well as the activity and estimated amount of time involved. The 12 *Result* codes describe pharmacists' assessment of the proximal outcome of each cognitive service intervention, particularly if it resulted in a change in drug therapy (these were treated as the outcomes of the pharmacist's service, as opposed to patient-based outcome measures).

Internally, we mapped the CSC's against the NCPDP version 3.2 standard for coding pharmacist response to computer system-generated (i.e., On-line Prospective Drug Use Review, or OPDUR) drug therapy problem messages. Our expanded codes were constructed in such a way as to allow collapsing these codes for potential comparison purposes. The reverse was also true; in some cases, we used codes that were less detailed than those in the NCPDP coding scheme.

3.6 Documentation Procedures

Pharmacists in Croups A and B were asked to document all instances in which a potential or actual prescription-, drug-, or patient-related problem was encountered that resulted in an intervention by a pharmacist. Documentation was accomplished either using a paper form (Appendix A), or electronically using a program designed to mimic the layout of the paper form. In addition to the CSC for each intervention, pharmacists were asked to provide information about the prescription itself, including the original and changed information about the drug (e.g., NDC number, quantity, days' supply) and the reference number for the prescription.

Initially, pharmacists were given the option of deciding which documentation method to use. Approximately **60%** of participating pharmacies elected to document cognitive services using the paper forms; the remaining 40% used paper forms and/or the computer-based system to document. This system was flexible; pharmacies using paper forms could, at their request, convert to the computer-based documentation system, and vice versa. **By the end of the study, over 70% of the pharmacies used paper forms.**

Originally, two computerized documentation programs were developed for pharmacies desiring on-line data entry capability. Although both programs were made available to participating sites, use of one program was emphasized during training and, as

a result, the vast majority of sites using computer documentation opted to use that program. Pharmacists were required to send paper, or computer-disk documentations to the University of Washington monthly using postage-paid envelopes provided to them by the project.

Pharmacists in Group A also generated a billing document for each cognitive service. The billing document for each cognitive service was in the form of, and was processed in the same manner as prescription claim. The CSC was entered into the NDC code field and the duration of each intervention (in minutes) was self-reported in the *Quantity* field of the prescription drug claim. Prescription numbers were used to establish a link between each documented cognitive service and its related dispensed prescription(s) data maintained in the State Medicaid claims files. Using these codes, the only operational changes needed for the Medicaid program to process cognitive services payments were the addition of **CSC's** to the drug database and a reimbursement algorithm based on minutes of pharmacist time, instead of number of dosage units dispensed. Edits of billing documents were handled in the same manner as prescriptions; an error and reconciliation report was sent for all erroneous or invalid billings (e.g., due to ineligible patient or unrecognized CSC code).

3.7 Determination of Payment Rules

As noted previously, cognitive services eligible for payment were limited to those that are not a basic or requisite part of dispensing (i.e., accepting, interpreting, and **clarifying** a prescription order, preparing a prescription, delivering it to a **patient**.) During the initial phase of the project, an array of codes was developed to characterize the types of cognitive services likely to be undertaken by pharmacists. At that time, rules to determine which cognitive service events (codes) would be payable as part of the CARE Project were written. These rules were designed to reflect "logical" combinations of problem-intervention-result codes and to acknowledge the time that pharmacists spend performing the different types of cognitive services, regardless of the outcomes of those interventions.

Cognitive service fees of \$4 and \$6 were paid, based on whether interventions were 6 minutes or less, or more than 6 minutes in duration, respectively. Payable interventions were not limited to only those relating to incoming prescriptions. Rather, a pharmacist's role in managing the drug therapies of assigned (i.e., case managed) patients, providing drug-related triage, and making referrals for patients seeking care was recognized, and these activities were also included among the list of payable cognitive services. Payable services, however, were required to be provided in the context of identifying, correcting or preventing potential drug-related problems.

The compensation system, with few exceptions, reimbursed pharmacists when there was a change in the prescription, a decision not to dispense a prescription (with concurrence of the prescriber), or for an extended patient counseling activity for an identified issue. Most, but not all possible combinations of codes, and as many as two

documented cognitive service activities per patient, per day were eligible for reimbursement.

Original payment rules were written and approved by the CARE Project team, the Washington State DSHS, and HCFA. All Croup A pharmacies were provided with a list of 441 "payable codes" developed on the basis of these payment rules. A list of 42 additional payable codes were approved in March 1994 and these, too, were distributed to Croup A pharmacies. In August 1994 the project team approved a much shorter list of 9 new codes to be added to the payable list, and notified Croup A sites of these additions in early September 1994. A description of payment rules as well as a comprehensive listing of the cognitive service codes eligible for payment can be found in Appendix B.

Additions to the initial payable codes list are to be expected in a project such as this one, since it is not possible to determine in advance all of the coding combinations that conform to the established payment rules. The project team was alerted to **problem-intervention-result** coding combinations that required review either by a pharmacist who described why it was necessary to use a "nonpayable" combination to characterize an intervention he or she had performed for a patient, or by a regular review of claims rejected by DSHS for using a "nonpayable" code combination. Over time, previously unrecognized code combinations rapidly declined, as did the number of additions to the payable codes list. As a result we believe the resulting coding system and codes successfully characterize the vast majority of cognitive service situations faced by practicing pharmacists.

4 .O Implementation

4.1 Recruitment

Potentially eligible pharmacies were recruited by direct mail, presentations to corporate officers of chain drug stores, via announcements in publications of the State of Washington DSHS, and through other press publications commonly received by pharmacies (e.g., Washington State Pharmacist's Association newsletters, and 'University of Washington School of Pharmacy alumni newsletters). A sample recruitment announcement is reproduced in Appendix C.

Formal contracts specifying terms, conditions, and responsibilities of DSHS and participating pharmacies in this study were prepared with the help of the Assistant Attorney General assigned to the State of Washington DSHS. This contract became an addendum to the basic contract to provide services for Medicaid enrollees. A copy of this document appears as Appendix D.

Our original goal was to recruit a sample of 200 pharmacies into the demonstration study. As of February 1994, only 160 pharmacies had met **all** of the enrollment criteria. Supplemental recruitment efforts were initiated and, as of April 1, 1994 enrollment totaled 193 pharmacies, 107 of which were assigned to study Group A (receiving reimbursement for cognitive services) and 86 of which were assigned to study Group B (no cognitive services reimbursement).

Between April 1, 1994 and September 1, 1994 (when enrollment closed), an additional 14 pharmacies were recruited, enrolled, and assigned randomly into the existing groups. However, during the same period, 7 pharmacy sites were lost to attrition, resulting in a total sample size of 200 pharmacies as of the formal end of study enrollment. Of these 110 were assigned to study Group A (payment for cognitive services) and 90 to study Group B (no payment for cognitive services). Pharmacies were assigned to groups only after each had made a commitment to join the project.

4.1.1 Extending the demonstration: Contract Amendments. The data collection phase of the CARE Project was scheduled originally to span 12 months, ending in January 1995. However, in August 1994 the proposal to extend the period of data collection through September 30, 1995 was made by project investigators, and approved by HCFA. In order to participate in the extended data collection period it was necessary to obtain from each enrolled pharmacy a State (DSHS) contract amendment, signed and dated before January 3 1, 1995. All pharmacies were sent the required paperwork by mail, together with a letter explaining the extension, on October 11, 1994.

As of mid-November 1994, more than 70% of the amendments had been signed and returned. A telephone call and second mailing of paperwork to pharmacies who had not yet signed amendments was completed on November 23, 1994. By January 17, 1995

some 84% of the contract amendments had been returned as requested. One more **follow-**up by phone (and fax, if necessary) was made to pharmacies with paperwork outstanding.

Ultimately all but 11 amendments (6 from Group A sites; 5 from Group B sites) were signed by representatives of participating pharmacies and received by the January 31, 1995 deadline, resulting in a continuation rate of nearly 95%. Between February 1 and September 30, 1995, then, participating sites for the continuation phase of the project numbered 189, with 104 assigned to Group A (payment) and 85 assigned to Group B (no payment).

4.2 Orientation and Training of Pharmacists in Groups A & B

4.2.1 Initial training. A total of 266 pharmacists attended one of 26 in-service training sessions held around the state during the months of November and December 1993. Pharmacists unable to attend one of the in-service sessions received a video-taped version of the training presentation. All participants received a detailed training manual (Appendix E) to keep on-site as a reference during the course of the study, and had access to a **toll-free** CARE project telephone number to use as other questions or concerns arose.

The goals of the training sessions were to familiarize participating pharmacists with cognitive services in general, as well as with their documentation, purposes, and significance within the context of the CARE project. The training sessions were conducted by CARE team members in collaboration with a community pharmacist. In addition to orienting pharmacists to the purposes of the project, the moderators demonstrated the use of computerized and manual cognitive services documentation formats, provided information (for Group A pharmacies only) on how to bill DSHS for cognitive services, reviewed several case studies with which pharmacists could practice delivering and documenting cognitive services, and answered participant questions. Each pharmacy was given practice cases and forms as a "homework" assignment. Each pharmacist submitting practice forms received feedback from a project co-investigator.

4.2.2 Washington State Pharmacists' Association (WSPA) Meeting - June 1994.

The CARE Project was highlighted in a poster session for the **WSPA's** annual convention in June 1994. Project staff were on hand to provide a project overview, answer questions, encourage and motivate pharmacies who are already part of the study. In addition, project summary sheets and start-up materials were prepared for distribution on-site to pharmacists interested in learning more about, or enrolling in the study. Reception for the project by convention-attendees was positive, and the WSPA Board of Managers openly expressed their support for the study.

Fall 1994 Training A second wave of training sessions was conducted in 16 locations throughout the state during October and November 1994. A total of 18 meetings were held. Additionally, CARE **staff** made individual visits to pharmacists unable to attend a meeting when this could be coordinated with staff travel schedules. In

all, personal contact was made with 93 pharmacists representing approximately 80 (40%) of the participating pharmacy sites.

Training sessions were informal, and an atmosphere to encourage questions and discussions was maintained. Project staff reviewed documentation procedures with participants, emphasizing minor procedural changes that had been implemented since the participants' first training session. **Opportunities** to identify and document drug-related problems were discussed, as were barriers pharmacists encounter in the provision of cognitive services. Participants were mailed in advance four case studies (see Appendix F) and, as a group, discussed appropriate ways to intervene and document the cognitive service(s) each case suggested. The case studies proved to be a springboard for spontaneous discussions among the pharmacists about situations they had encountered in their own practices which they had found to be complex and/or **difficult** to document. Those attending the sessions evaluated them very favorably.

In addition to group sessions, all participating sites were mailed a **2-sided**, laminated sheet ("The Anatomy of a Cognitive Service Documentation") along with a **tri**-fold brochure ("Is it a Cognitive Service?") designed to be kept as quick-reference materials for pharmacists' workstations (see Appendix G). Pharmacists who were for any reason unable to attend one of the group training sessions were extended an **open**-ended invitation to contact Project staff via our toll-free number to arrange for individualized training and/or review, if needed. Many pharmacists indicated that they did not attend training because procedures seemed clear and they felt that they were being kept up to date via newsletters and other Project announcements. However, six sites asked for, and received, some form of individualized, training-related assistance **after** formal training sessions were completed.

5.0 Cohort Maintenance and Support

5.1 Encouraging Pharmacists' Participation: Communication and Feedback

Project policy was to preserve interest, participation and enrollment in the study via communication, encouragement and feedback. Consequently, a decision was made to have one of the study investigators personally contact any participant expressing a wish to disenroll before the disenrollment.

Several communication vehicles were used to keep in contact with participating pharmacies. A toll-free telephone number was made available **from** the outset of the study. Calls were answered in person by University of Washington School of Pharmacy secretarial staff during regular business hours, and by voice mail during non-business hours; calls were routed to the appropriate CARE staff member immediately or, if the staff member was unavailable, returned within 24 hours (or the next business day).

C.A.R.E. Talk, a (roughly) bi-monthly project newsletter, provided another vehicle for regular communication with study participants (see Appendix H). Monthly "reminder" postcards and broadcast faxes were sent during the early stages of the project to encourage data submission. Project-related brochures and laminated forms designed for ease of use at pharmacists' workstations (see Appendix G) were distributed. Order forms with which participants could request additional project-related supplies (which were sent by mail, usually within 48 hours of receipt of the request) were available to all sites (see Appendix I).

Additionally, in January, June, and December 1995 each participating pharmacy was sent a summary feedback report about the cognitive service documents submitted from that pharmacy to the CARE Project. The reports listed for each pharmacy the number of cognitive services recorded in the CARE! database, by month; the most common cognitive service reports (problem, intervention, and result) received; and the drugs most commonly involved in those reports (see Appendix J).

The primary purpose of the report was to provide interim information for individual sites about the cognitive service interventions they had reported at certain points in the project. No attempt was made to compare documentation activity with that of peers. A primary purpose was to cross-check the University's records with those of each pharmacy; that is, pharmacists were asked explicitly to confirm the content of the feedback report with their own records and to inform us of any discrepancies they might note.

5.2 Area Coordinators

It was envisioned at the project's inception that a geographically-determined network of 42 area coordinators would be recruited to help CARE staff contact, recruit,

train, motivate, and support participating pharmacies. Each area coordinator was to be a pharmacist who would oversee the study-related activities of four to eight pharmacies, and would receive \$30 in (total) in compensation from the CAKE project for each pharmacy they had been assigned to supervise. In particular, it was intended that area coordinators would contact each pharmacy they were assigned to supervise at least once a month to make sure that documentation was being sent in, to respond to any questions or problems that may have arisen at the sites, and to help address any training, organizational, and/or other needs that inevitably arise during the course of a demonstration project such as this one.

Our experience, however, was that the area coordinator system, while sound in theory, did not work in practice as well as we expected. In mid-summer of 1994 project staff attempted to mobilize area coordinators to help notify participating sites about newly instituted procedural changes. Each area coordinator was told again of the particular communication need by letter, and in general reminded of their responsibilities. in a special *Coordinator C.A.RE.* newsletter (see Appendix K). Payments (one-half of the total amount promised) to area coordinators were also distributed at that time.

The immediate, specific task assigned to each area coordinator was to make contact with each of their constituent pharmacies to inform them of the procedural changes, and to inquire about study progress at that site. Though we have no doubt that all the area coordinators accepted their roles with good intentions, actual performance was not easily accomplished.

Perhaps 25% of the area coordinators responded willingly and quickly to our request. Unfortunately, the remainder did not. Project staff completed as many as three telephone contacts with each area coordinator to inquire about site contact; in a number of instances it ultimately became necessary to contact individual pharmacies from the University's central project **office** instead.

Following this experience, project staff did not feel comfortable relying on the area coordinator system to help motivate, or disseminate information uniformly to participating sites. As a result, **staff** members assumed more cohort maintenance and communication tasks than had been planned originally. Instead of project personnel being involved primarily with the 42 area coordinators (who would then, in turn, each be involved with their constituent sites), it instead evolved that all pharmacies were coordinated from one central **office**, with help from the field being requested on an ad hoc basis.

6 .O Data Management

6.1 Data Intake

The design of the CARE project yielded two streams of data describing cognitive services. One data stream was generated when cognitive service claims were submitted (by Croup A pharmacies) to the State Medicaid office for payment. The other data stream came to the University of Washington School of Pharmacy in the form of cognitive service documents (from both Croup A and Croup B pharmacies). In addition, all prescription claims submitted by study pharmacies to DSHS were captured at the State Medicaid office for subsequent CARE Project analysis.

At the DSHS level, cognitive service claims were passed against a standard series of edit checks including patient codes, pharmacy eligibility for payment (Croup A only), eligibility of the cognitive service for payment, and number of cognitive service codes submitted per patient (no more than two per patient per day were allowed). Claims rejected for any reason were returned to pharmacies with an explanation, using a process mirroring that for rejected prescription drug claims.

At the University of Washington, all records received were checked for legibility and completeness. A set of routine checks were performed (see also Section **YY**), the result of which designated the record either accepted or suspended. Suspended records were defined as incomplete cognitive service documents, or documents for which one or more information fields contained invalid, or illogical codes. A listing of codes and the logic for determining suspended records appears in Appendix L.

Suspended records were reviewed internally and sent back to the **pharmacy** for correction as necessary. Accepted records were written to a computer database file for subsequent analysis.

Overall, approximately 8-9% of records submitted to the UW were suspended and resulted in re-contact with the submitting pharmacy. Where systematic problems were noted, individual sites were contacted in person by project personnel for data correction and follow-up training. Usually, however, pre-printed data correction forms (see Appendix **M**) describing both the problem(s) found as well as the information necessary to solve them were sent to pharmacists (approximately once every two months) along with postage-paid return envelopes.

Corrected data received from pharmacies were entered into the main cognitive services database upon receipt. However, after two mailings no further attempts were made to ask pharmacists to complete or modify records that had been suspended.

6.2 Payments Processing

Initially, all participation stipend claims (Groups A and B) and cognitive service claims (Group A only) were sent directly to, and processed by the State DSHS. This dual data stream (cognitive service *documentation* going to the University of Washington; all requests *forpayment* going to the DSHS) **functioned** adequately in terms of data processing and payments of cognitive services fees, but created **confusion** and delay with regard to payment of monthly participation stipends. To overcome these problems we modified data intake procedures. Beginning in June 1994 pharmacists were directed to send monthly stipend vouchers directly to the UW, along with monthly cognitive service documentation forms.

By having vouchers for monthly participation stipends sent to the University, staff members were able to link these payments directly with the receipt of data indicating that a site had, indeed, participated in the study as required. Once vouchers were “cleared” by project personnel involved with logging in data, they were sent to DSHS where they were processed for payment, generally within four weeks of their receipt.

7 .O Implementation Problems Encountered

7.1 Lack of a Baseline Period

We had intended originally to have a baseline period of one to two months in which all participating pharmacies (Group A and Group B) would document cognitive service activities without reimbursement. However, pharmacists either did not document or were slow to return the forms. Relatively few cognitive service interventions were reported during this period and, among those that were reported, coding errors were common. (Because participating pharmacists had signed contracts **specifying** a start date of February 1, 1994, it was not possible to delay the start of the reimbursement phase of the study period beyond that date.)

We expect that this **affected** the project in two ways. First, while we have baseline data on the number of prescriptions dispensed and the use of other medical care services by Medicaid recipients, cognitive services data collected during this period are largely unusable for **further** analysis. Second, pharmacists who began the reimbursement phase of data collection without a **successful** start-up phase were not optimally familiar with data documentation and submission procedures, which may have affected initial data quality. However, this appeared to be much less of a problem during subsequent waves of enrollment.

7.2 State Supplemental Rebate Program

In February 1994, coincidental with the first month of **CARE** project **data** collection, the State of Washington implemented a supplemental rebate program. Under this program, drug manufacturers were asked to sign a supplemental rebate agreement with the state. Products from manufacturers *not* signing the agreement were designated "**restricted**" drugs. Many major drug manufacturers chose *not* to enter into the supplemental rebate agreement with the state.

The net effect of this policy was to require pharmacists to telephone someone (either the prescriber for permission to change to another drug, or the DSHS for permission to dispense the drug prescribed) for an estimated one out of every two Medicaid prescriptions. Though pharmacists were quite vocal in their dislike for this policy and appealed to the legislature as well as the courts for a change, it was not until July of 1995 that the program was discontinued.

This supplemental rebate program potentially affected the CARE project in several ways. Faced with this additional administrative burden for Medicaid prescriptions, pharmacists may not have engaged in as many cognitive services activities during the period in which they were required to comply with the supplemental rebate program. Or, pharmacists may have engaged in cognitive services activities during the period of the program but on a delayed basis, after adjusting to these new demands on their time.

Alternatively, it is conceivable that the supplemental rebate program may have acted as a source of motivation to engage in **even more** cognitive service activities. Group A pharmacists, especially, may have considered it worthwhile to either call the physician for permission to substitute a therapeutically or generically equivalent drug product, or may have been motivated to establish prior authorization or prescriptive authority agreements for specific drugs. Under our established payment rules, either of these actions would have been reimbursable cognitive service activities. Review of submitted documents revealed that this action occurred very infrequently,

7.3 Mandatory Prescription Drug Co-pay

Beginning January 1, 1994, the Washington legislature required DSHS to collect a \$1 co-pay for each prescription dispensed to adult Medicaid recipients, with certain exceptions. This co-pay was to be collected by the provider pharmacy, and would be deducted from the pharmacy's reimbursement for the prescription claim. However, under Federal rules, the co-pay could be waived if patients could not, or **refused** to pay it.

This policy change created a great deal of provider confusion and animosity toward the Medicaid program, resulting in some potential sites removing themselves as candidates for inclusion in the **CARE** Project. The co-pay requirement, which was equally applied to all study and control group pharmacies, was rescinded on April 1, 1994.

7.4 Initially Low Response Rates

We considered a participating pharmacy to have been "responsive" in any given month of the demonstration if we received documentation of cognitive services performed for that month, or if the pharmacy informed us that no cognitive services had been performed for the period. As of mid-1994 response rates were low, with only about 70% of enrolled pharmacies having submitted any data since the study's inception. Forgetfulness and excessive workload were the most often cited anecdotal reasons for not having submitted data. Thus, we encountered a longer time lag for collecting data than had been anticipated at the start of the study. Instead of an approximate one month **lag**-time to collect data (i.e., data for one month complete by the end of the next), we experienced a two-month lag, longer in some cases.

Several measures to address the situation were implemented. First, a policy to withhold DSHS payment of monthly project participation vouchers until cognitive service data were received by the University of Washington was instituted (effective April 1994) and the change was communicated to study participants via letter and newsletter announcements. Second, procedures designed to encourage participant responses were initiated, including monthly postcard reminders to submit data, faxed reminder messages, pharmacist feedback reports, and sometimes individual phone calls to specific sites. Finally, group training sessions as well as all ongoing communications to pharmacists emphasized the importance of submitting data in a timely manner. With these methods came a noticeable increase in response rates.

7.5 Transition of Managed Care Recipients

In 1993, the State of Washington DSHS initiated a managed care options program. Dubbed “Healthy Options,” this program enrolls Aid to Families with Dependent Children (AFDC) recipients in any one of several managed health care programs. Health care premiums in this program are paid by DSHS, and prescription drug coverage was an optional program benefit. The average enrollment in this program in 1994 was approximately 161,500.

As of mid-1994, only three relatively small managed care plans (which cover Medicaid patients utilizing CARE Project sites) enrolling approximately 24,000 AFDC recipients had accepted prescription drug coverage as a program benefit, thus impacting the CARE Project only minimally. The Healthy Options program continued to expand through 1995 in terms of the number of enrolled AFDC recipients. However, there was no substantial change in the number of plans incorporating a prepaid drug benefit.

Beginning March 1, 1995, however, health plans offering to contract for Medicaid patients were required to incorporate an integrated drug benefit at the time of their contract renewal. In May, 1995 several large health plans became qualified health providers and incorporated a prepaid drug benefit. Since this transition occurred within a relatively short period of time and affected patients statewide, any differential effect on Group A or Group B pharmacies was negligible or nonexistent.

Pharmacists were able to recognize Healthy Options enrollees by coverage information contained on their Medicaid eligibility cards, as well as on identification cards issues by the private plan with whom they were insured. To minimize any impact of this program on the CARE Project, participating CARE pharmacies were instructed, at training sessions and through periodic reminders, that they were to document (Groups A and B) and bill (Group A) for cognitive service interventions performed with **Healthy Options** patients in the usual manner, even though the patients’ prescriptions were being billed to the Healthy Options provider rather than Medicaid. On the basis of communication with Medicaid administrators we determined that there were relatively few cases in which pharmacists documented cognitive services for Healthy Options patients. If cognitive services documents for these patients entered our datastream, they would not have had matching Medicaid prescriptions (and, therefore, would be unavailable for many subsequent analyses; see Table 3 in “Demonstration Results” section). Because prescription records from Healthy Options managed care providers were not available to us, we were not able to further pursue or describe cognitive services performed for them.

7.6 Data Capture

Late in August 1994, CARE staff were alerted to a data capture problem with sites using one of the computerized programs to document cognitive services, namely, that documents were not being completely downloaded from pharmacy computers’ hard drives

to floppy disks for submission to the University's database. The documents still existed on the pharmacy computers' hard drives; the problem was simply that they were not being downloaded correctly onto floppy disks. The net effect was that the main CAPE Project database was **receiving fewer** documents than were actually occurring in the field.

An audit of all sites using the **affected** software was conducted immediately. In September 1994 each of the 39 pharmacies using the software was asked to submit a "re-run" disk of all documents logged to date. This re-run record was then used to supplement the main CARE database as necessary.

In all, this audit resulted in the recapture of more than 2,000 cognitive service documents. Subsequent to the first audit, project personnel continued to track pharmacies using the affected program, and noticed that about half of the 39 pharmacies experienced continued problems. CARE staff stayed in direct contact with each of these sites, and maintained a policy of inviting participants to convert to paper documents, as necessary and/or as desired, for the duration of the data collection period.

At the end of the study, all sites that had submitted documents using the affected software were again asked to submit a re-run disk of all their interventions. These re-run disks were used as before: to confirm that the main CARE database had **fully** captured all documents submitted by each site.

7.7 Synopsis

A chronological synopsis of the events just described is given in Figure 3.

Figure 3
Synopsis of Important Events in the CARE Project

February 1994	Wave I pharmacies begin Medicaid Supplemental Rebate Program begins <i>CARE Talk</i> newsletter distributed
April 1994	Wave II pharmacies begin. Medicaid mandatory Rx drug co-pay requirement rescinded <i>CARE Talk</i> newsletter distributed
June 1994	Monthly stipend vouchers begin coming to the UW CARE highlighted at WSPA annual convention <i>CARE Talk</i> newsletter distributed
July 1994	<i>Coordinator CARE</i> newsletter distributed
August 1994	Demonstration period of project extended through Sept. 1995
September 1994	Wave III pharmacies begin "Audit" of sites using software for data capture

October 1994	CARE <i>Talk</i> newsletter distributed
November 1994	Second round of formal training for pharmacists
December 1994	Medicaid reimbursement allowed for Mediset containers
January 1995	Pharmacist feedback reports distributed
February 1995	CARE <i>Talk</i> newsletter distributed
May 1995	Extended drug benefit coverage under Managed Care option program
June 1995	Pharmacist feedback reports distributed Pharmacy/pharmacist survey conducted
July 1995	Supplemental Rebate requirement terminates
September 1995	Final month of demonstration phase CARE <i>Talk</i> newsletter distributed
December 1995	Pharmacist feedback reports distributed

8.0 Demonstration Results

8.1 Response Rates

The overall response rate for the study (including both Group A and Group B pharmacies) was 86%. In other words, pharmacies submitted cognitive services documents, or notified the project that they had no documents to submit to the CARE project, on average, for 86% of the months in which they were enrolled participants in the study. Group A pharmacies alone had an average response rate of 88%; the average for Group B pharmacies was a slightly lower 84%.

About 58% of the participating pharmacies logged perfect response records, sending in cognitive services data to the University of Washington for every month they were enrolled in the CARE project. These “high responders” appeared as both Group A and Group B pharmacies in approximately equal proportions.

In contrast, there were 15 enrolled pharmacies that, despite our best efforts to encourage them, participated in the study only minimally (i.e., sending in data for fewer than 15% of the months in which they were enrolled), if at all. Ten of these pharmacies were in Group A; five were in Group B. Pharmacists at these sites mentioned a variety of reasons for their lack of participation, ranging from staffing and workload issues, to self-described “inertia,” to annoyance with one or more elements of the Medicaid program.

8.2 Data Cleaning and Validation

8.2.1 In-process Validation.

The CARE Data Intake System (CDIS) included in-process validation of records at time of intake. Key fields were examined by the program and a value was recorded in an Error Code field to indicate the results of the validation check. Certain validation failures resulted in the record being “suspended” for further processing. Table 1 lists the validation checks and the results of a failure.

Table 1
Error/Comment Codes

Error Code	Description	Suspend?
A1	Problem type missing or not valid	Yes
A2	Intervention type missing or not valid	Yes
A3	Result type missing or not valid	Yes
B	The cognitive service code is not on the list of payable codes	No
C1	Pharmacy ID missing	Yes
C2	Date of service missing or incomplete	Yes
C3	Morbidity risk missing	No
C4	3rd party type missing or not valid	Yes
C5	Time missing or zero	No
C6	R.Ph. initials missing	Yes
D	If RR indicates a drug was originally involved in the cognitive service, (all RR except: Add OTC (RR=05); Counsel Patient (RR=30); and Referral (RR=40)) then the cognitive service must have both an Original NDC and an Original Quantity OR If RR indicates Counsel Patient (RR=30) and the Problem type indicates a drug was originally involved in the cognitive service (all PP except: Patient Communication Difficulty (PP=30); Patient Case Managed (PP=34); Patient Seeking Care w/sx.. (PP=41); Patient Seeking Care w/out symptoms (PP=42); Other non drug problems (PP=90)) then the cognitive service must have both an Original NDC and an Original Quantity	Yes
E	If RR indicates a change in dose (RR=11), then the cognitive service must have an Original Days Supply	Yes
F	If RR indicates a drug was changed, or a prescription drug was added (Change to drug of choice (RR=01), Add Rx Drug therapy (RR=02), Substitution generic (RR=03), Substitution therapeutic (RR=04)), then the cognitive service must have a Dispensed NDC and a Dispensed Quantity	Yes
G	If pharmacy is in group A and the cognitive service code is payable, then there should be an Rx number. Note: This does not imply that we are requiring the code to be payable. Rather, we need the pseudo-Rx number the pharmacy assigned the cognitive service claim when submitting to DSHS. This information is necessary for linking of UW and DSHS cognitive service claims.	Yes
H	If Pharmacy is in group B, then the cognitive service should have an Rx number unless the RR implies a drug was not dispensed (Add OTC (RR=05), Discontinue drug (RR=21), Do not Dispense (RR=22), Counsel Patient (RR=30), or Referral (RR=40))	Yes
I1	Original NDC imputed from Dispensed NDC	No
I2	Dispensed NDC imputed from Original NDC	No
I3	Original quantity imputed from Dispensed quantity	No
I4	Dispensed quantity imputed from Original quantity	No
J	R.Ph. ID not in our list of R.Ph. IDs .Note: this code was never implemented	No
K1	Original NDC not in list of valid NDCs from DSHS	No
K2	Dispensed NDC not in list of valid NDCs from DSHS	No
L1	Pharmacy NABP number not on our list (applies to manual forms)	Yes
L2	DSHS ID replaced NABP number (applies to manual forms)	No

PP=Problem code; RR=Result code; II=Intervention code

Suspended records were returned to pharmacies for correction. The results of these validation efforts are summarized in Table 2.

Table 2
Results of In-process Validation

Error Code	Field	Count on Intake	% on Intake	End Count	End %
C1	Pharmacy	53	0.3%	0	0.0%
c2	SrvcDate	125	0.6%	68	0.3%
C6	RPHID	75	0.4%	45	0.2%
A1	Problem	42	0.2%	16	0.0%
A2	Intrvntn	46	0.2%	14	0.0%
A3	Result	63	0.3%	21	0.1%
c5	TIME	2279	11.1%	396	2.0%
c3	MorbRisk	2377	11.5%	2372	11.7%
E	ORIG DS	284	1.4%	155	0.8%
D	ORIG Qty/NDC	1184	5.8%	718	3.5%
F	DISP Qty/NDC	253	1.2%	89	0.4%
G	Rx. No	413	2.0%	354	1.7%
	N*	2538		1480	

**Count of records with at least one missing or invalid data field.*

8.2.2 Multiple Provider Numbers

In the Washington State Medicaid program, providers of care may have multiple provider identification (ID) numbers. Reasons for multiple **IDs** include changes in provider location classification, or enrollment status over time. This means that a DSHS provider is not necessarily completely identified by one ID number; potentially several **IDs** are needed to capture all of a provider's activity. To allow for this possibility, a listing of all group A, B and C pharmacy providers was sent to the Washington State Medicaid Program. All ID numbers associated with providers in the three groups on the list were obtained, and multiple provider numbers were cross-referenced to a single pharmacy. There were 479 alternative **IDs** found for the three provider groups; thus, any analysis that does not consider potential alternative **IDs** may underestimate the true number of claims attributable to a particular pharmacy.

8.2.3 Establishing Links between Cognitive Service Documents and Claims Submitted by Group A and Group B Pharmacies.

Under Washington law and regulation, pharmacists may not disclose **information** which identifies the patient to any other person not involved in the direct care of the patient without the written permission of the patient (or his or her legal guardian, if the patient is a minor). Although for the purposes of this study, the Medicaid program could provide identifying data to CARE project researchers without obtaining permission from each Medicaid recipient, it was deemed impractical for each participating pharmacist to obtain this permission prior to submitting data to the CARE project. Thus, since the cognitive service documentation did not contain any patient identifiers, it was necessary to link cognitive service **documentation** records with drug claims.

Cognitive service (CS) documents were matched on the basis of Pharmacy ID + Prescription Number. Initially (December 1995), approximately 74% of CS documents were matched with paid claims for dispensed drugs and/or CS claims, based on 14,854 records. Examination of the data revealed several possible explanations for non-matched records, some of which might be remedied. Cognitive service documentation records were grouped by pharmacy in descending order of non-matching rates, and records were examined for systematic problems. The following problems were identified and corrections were made in a **stepwise** fashion, with direct contacts made to pharmacies having a large number of non-matching records:

- Pharmacies with duplicate provider ID numbers accounted for 1,008 non-matching records, all of which were recoded (Flag A, Table 3).
- One pharmacy's data processing system produced a consistent error which truncated the prescription number on claims submitted to Medicaid. Of these, 369 **non-matching** records were recoded (Flag D, Table 3).
- Another pharmacy misunderstood the project procedures and assigned a **pseudo-prescription** number to their CS documents, accounting for 121 non-matching records, all of which were recoded (Flag G, Table 3).
- No corresponding drug claim was expected for cognitive services performed by Group B pharmacies when no drug was dispensed. Records for Group B pharmacies with a result code of **05, 22, 30** or 40 contributed 323 non-matching records that we would not expect to link to claims (Flag I, Table 3).
- Three pharmacies reported cognitive services for patients whose prescriptions were not payable by DSHS. These claims included Healthy Options patients or **private-pay** patients not eligible for Medicaid. For these reasons, 3 15 non-matching records were accounted for in the partial data set (Flags E, F and K, Table 3).
- One pharmacy contributed 71 non-matching records prior to dropping out of the study in December 1994 (Flag H, Table 3).

Collectively, of this partial data set, 2,576 records were "flagged" for the reasons identified above, of which 1,498 could be corrected and subsequently matched with Medicaid records. Table 3 summarizes these findings. Table 3 displays records with one or more of these flags and indicates that the majority of records had only one problem.

Table 3
Resolution of Non-matched Records, 12/95

	Flag	A	B	D	E	F	G	H	I	K	Totals
<i>Multiple ID</i>	A	1008									1008
Rx # missing	B	91	185								276
<i>Truncated Rx #</i>	D		34	369							403
Healthy Options	E		21		122						143
Doc'd ALL Pt	F		2			124					126
<i>Pseudo Rx#</i>	G		2				121				123
Dropped out 12/94	H		27					44			71
RR=05,22,30,40; Gp=B	I	53	115						155		323
CS for non-DSHS Pts	K								2	44	46
	B+I	44									13
	Totals	1196	386	369	122	124	121	44	157	57	2576

Ital = correctable

Table 4 displays the final results of the data validation process. A total of 2237 records (11% of all records) were flagged and reviewed. Approximately 94% of the records either were not flagged or were corrected after flags occurred. Of records initially flagged, slightly over half were corrected. The remainder contained one or more missing data fields or did not match with a dispensed prescription, but nevertheless represented a documented cognitive service. The number of flagged records was slightly higher in Croup B than in Group A (14.8% vs 9.7%, respectively).

Table 4
Results of Data Cleaning and Validation

	Total		Group A		Group B	
	N	%	N	%	N	%
Not flagged	18003	89.0	13,551	90.3	4452	85.2
Flagged, reviewed and corrected	1039	5.1	720	4.8	319	6.1
Flagged, reviewed and not corrected	1198	5.9	742	4.9	456	8.7
Total	20240	100.0	15013	100.0	5227	100.0

**Flagged and reviewed records had at least one missing or invalid data fields. Flagged records retained in the database but not corrected had one or more missing data fields.*

8.2.4 Excluded Records

A total of 348 cognitive service documents were ultimately removed from the database for one of three reasons: (1) the date of service indicated was outside the project time frame of 2/94 through 9/95; (2) the value in the third party type field was not "001," indicating that the patient was not Medicaid eligible; and (3) the record was a duplicate, in that it shared with another record the same pharmacy ID number, prescription number, date of service, original and

dispensed NDC numbers and problem, intervention, and result codes. Six records had invalid dates of service, 32 were not for Medicaid-eligible patients, and 3 10 duplicate records were identified.

8.25 Net Results of Record Validation, Cleaning, and Linking

The final count of cognitive services documents was 20,240 records, of which 82.5% could be linked with a paid drug or cognitive service claim. Reasons the remainder did not match included managed care patients, and cognitive services that did not involve a specific prescription.

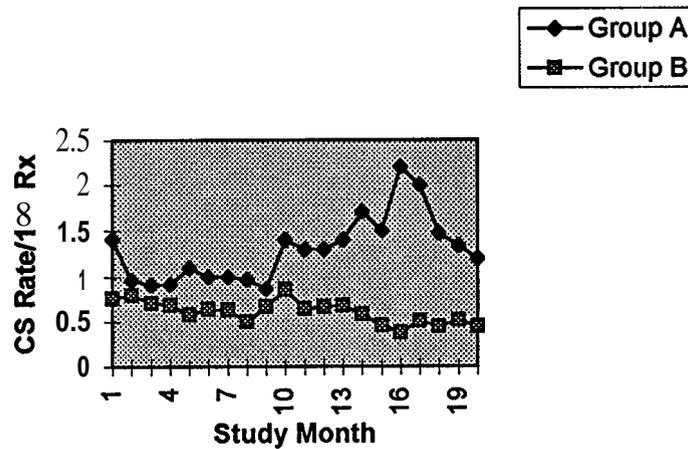
8.3 Cognitive Service Documentation Rates

A total of 20,240 cognitive services documents were filed by Group A and B pharmacies during the course of the study. Overall, Group A pharmacies submitted approximately 75% of all cognitive service documents.

Recognizing that the number of cognitive services documented would be dependent on Medicaid prescription volumes, we derived and compared the cognitive services documentation rates per 100 Medicaid prescriptions dispensed by each pharmacy. Intervention rates were determined by month, then averaged over study months. The overall average cognitive services intervention rate was 1.17 per 100 Medicaid prescriptions dispensed. Among Group A pharmacies the mean rate was 1.59 (st. dev. 1.01) and for Group B pharmacies, 0.67 (st. dev. 0.23). This difference was significant ($p < 0.001$, Student's T test).

Figure 4 reports the aggregate (unweighted average) cognitive service documentation rate for Group A and Group B pharmacies for each study month. By this measure, Group A pharmacies had higher documentation rates than Group B pharmacies during each month.

Figure 4
Cognitive Service Rates per 100 Dispensed Medicaid Prescriptions



During the early months of the demonstration period, a rate of about 1.3 cognitive services per 100 Medicaid prescriptions dispensed was observed for Group A, as compared to about 0.7 for Group B. In later months, the documentation rate in Group A gradually increased, to a high of 2.4 near the end of the study. In contrast, the rate in Group B remained relatively flat throughout the study period. There was an increased rate of documentation in Group A beginning the 10th study month (November 1995); following the Project's second round of in-service training for pharmacists.

We similarly examined the **frequency** of documentation across time based on participation month rather than study month. This was to determine the effect of time of enrollment (i.e. "wave" effect) on documentation rates. We found essentially the same pattern of reporting of cognitive services for both groups as shown in Figure 4. This suggests that the time of enrollment had minimal, if any, effect on overall cognitive services documentation rates.

There was, however, disproportionate documentation of cognitive services by specific pharmacies. Table 5 indicates that the 10 most productive pharmacies accounted for nearly half of all documented cognitive service events, while the top 25 pharmacies accounted for over two-thirds, and the top 50 pharmacies accounted for 84% overall. Within these categories, the top pharmacies contributed even higher proportionate amounts.

Table 5
Pharmacies Most Frequently Reporting Cognitive Services*

Total documented	All	Group A	B
C S			
Top 10	49.6%	63.2%	55.2%
Top 25	68.5	84.0	78.9
Top 50	84.1	96.0	95.9
Top 75	92.0	99.5	99.9

* values represent the cumulative percentage of cognitive services reported within group

Table 5a
Documentation Rates Among Pharmacies Reporting Cognitive Services by Group

Volume of C.S.	Total			Group A			Group B		
	N*	Mean	s. dev.	N*	Mean	s. dev.	N*	Mean	s. dev.
1-25%	41	0.10	0.12	21	0.07	0.06	20	0.12	0.16
26-50%	44	0.33	0.21	22	0.34	0.25	22	0.31	0.18
51-75%	40	1.13	0.97	18	1.29	1.18	22	1.00	0.76
76-100%	45	4.43	6.18	301	4.81	6.9	15	3.68	4.55
	170			91			79		

*Number of pharmacies with documented cognitive services

Table 5a shows the distribution and characteristics of pharmacies by quartile based on the volume of documented cognitive services, as well as the mean cognitive services documentation rate per hundred dispensed prescriptions. The documentation rates increased with the volume of documented cognitive services, suggesting higher Medicaid prescription volumes alone did not explain the higher documentation activity. The highest volume quartile of pharmacies contributed cognitive services at a rate of 4.4 per hundred prescriptions. Comparisons of the mean documentation rates between groups reveal similar documentation rates except for the highest quartile, where the rate for Group A was higher (4.81 per hundred prescriptions vs. 3.68 for Group B).

Of the 10 most productive pharmacies, six were independent pharmacies, two were small chain, and two were hospital pharmacies. About 60% of these pharmacies were in urban or suburban settings; the rest had rural or small town locations. Six of the 10 pharmacies were located in medical centers, two were free-standing neighborhood pharmacies, and one was housed in a shopping center (the setting of 1 pharmacy was missing). Half of the top 10 performing pharmacies in this demonstration reported monthly volumes averaging between 1500 and 2999 prescriptions. The highest performing pharmacy was in this category. The second highest performing pharmacy's monthly volume averaged less than 1500 prescriptions. Eight out of the 10 top performing pharmacies' average Medicaid prescriptions ran more than 24% of total monthly prescription volume. The remaining two pharmacies' average Medicaid

prescription volumes were between 10% and 24% of average total monthly prescription volumes.

We next explored differential documentation rates by method of documentation (paper vs. computer). Among Group A pharmacies, approximately 64% used paper forms; Among Group B: 77%. This difference was not statistically significant. Further, the mean documentation rates per hundred prescriptions among pharmacies who used paper vs. the computer program did not differ significantly. (paper: **mean=1.32**; s.d. = 3.53; computer: mean= 2.08; **s.d.** = 3.91; Student's T test results; $p < 0.362$). These findings suggest the method of documentation had a minimal and non-significant effect on observed cognitive services documentation rates.

8.4 Characteristics of Reported Cognitive Service Interventions

Frequency distributions of cognitive services by major cognitive service problem, intervention, and result type are shown in Tables 6, 7 and 8. The most frequently reported problem type was “case managed **patient**”(**35.4%**), followed by “drug complex administration” (**18.6%**), “suboptimal drug or dose” (12.6%) and “patient communication difficulty” (4.7%) (Table 6). According to our working definition, *case-managed patients* are patients (usually taking multiple medications for multiple chronic disease states) who are referred by pharmacists (including self-referral), prescribers, or the Medicaid program for drug therapy monitoring and follow-up.

Table 6
Frequency of Cognitive Services Problem Types

Problem	Overall			Group A			Group B			Diff- erence**
	N	%	Rate/M *	N	%	Rate/M *	N	%	Rate/M *	
Subopt. drug	1717	8.5%	0.77	994	6.6%	0.76	723	13.8%	0.80	0.001
Subopt. dose	835	4.1%	0.38	551	3.7%	0.42	284	5.4%	0.31	0.001
Subopt. dosage regimen	551	2.7%	0.25	301	2.0%	0.23	250	4.8%	0.28	0.001
Subopt. dosage form	254	1.3%	0.11	142	0.9%	0.11	112	2.1%	0.12	0.001
Subopt. duration of use	138	0.7%	0.06	78	0.5%	0.06	60	1.1%	0.07	0.001
Subopt: unnecess. drug	70	0.3%	0.03	29	0.2%	0.02	41	0.8%	0.05	0.001
Drug: therapeu. dup.	477	2.4%	0.21	287	1.9%	0.22	190	3.6%	0.21	0.001
Drug-drug interaction	609	3.0%	0.27	394	2.6%	0.30	215	4.1%	0.24	0.001
Drug-disease interaction	69	0.3%	0.03	41	0.3%	0.03	28	0.5%	0.03	0.005
Drug-allergy	425	2.1%	0.19	241	1.6%	0.18	184	3.5%	0.20	0.001
Drug-food interaction	6	<0.1%	0.00	1	<0.1%	0.00	5	0.1%	0.01	0.001
Drug-lab test interaction	3	<0.1%	0.00	2	<0.1%	0.00	1	<0.1%	0.00	0.766
ADR preventable	298	1.5%	0.13	273	1.8%	0.21	25	0.5%	0.03	0.001
ADR observed	39	0.2%	0.02	29	0.2%	0.02	10	0.2%	0.01	0.979
Drug-complex admin.	3766	18.6%	1.70	3435	22.9%	2.61	331	6.3%	0.37	0.001
Drug-other problem	901	4.5%	0.41	667	4.4%	0.51	234	4.5%	0.26	0.918
Pt. over-utilization	793	3.9%	0.36	446	3.0%	0.34	347	6.6%	0.38	0.001
Pt. under-utilization	299	1.5%	0.13	158	1.1%	0.12	141	2.7%	0.16	0.001
Pt. comm. difficulty	950	4.7%	0.43	381	2.5%	0.29	569	10.9%	0.63	0.001
Pt. case managed	7169	35.4%	3.23	6100	40.6%	4.63	1069	20.5%	1.18	0.001
Pt. other improper use of drug	56	0.3%	0.03	36	0.2%	0.03	20	0.4%	0.02	0.090
Pt. seeking care with symptoms	449	2.2%	0.20	285	1.9%	0.22	164	3.1%	0.18	0.001
pt. seeking care - no symptoms	65	0.3%	0.03	40	0.3%	0.03	25	0.5%	0.03	0.020
Other non-drug problem	285	1.4%	0.13	93	0.6%	0.07	192	3.7%	0.21	0.001
Missing	16	<0.1%	0.01	9	0.1%	0.01	7	0.1%	0.01	-
TOTAL	10240			15013			5227			

* Rate per thousand Medicaid prescriptions dispensed.

**Differences between groups in the number of documented cognitive services. Differences were assessed using the Chi-square Test (2x2). P values are uncorrected for multiple comparisons.

There were several differences between Group A and Group B pharmacies in the frequency with which specific problem types, interventions, and results were reported. Because of large sample sizes most differences were statistically significant, even if a Bonferroni correction for multiple comparisons were applied. The greatest differences in the frequency of problem reporting were for patient case managed (Group A: 40.6%, Group B: 20.5%), drug-complex administration (Group A: 22.9%, Group B: 6.3%), and patient communication difficulty (Group A: 2.5%, Group B: 10.9%).

These differences were also evident in the problem reporting rates per thousand Medicaid prescriptions. For patient case managed, the rate was 4.63 per thousand prescriptions in Group A, and 1.18 for Group B. For drug-complex administration, the rate was 2.61 per thousand for

Group A and 0.37 for Group B. Overall, the intervention rate per thousand was 11.4 for Group A and 5.8 for Group B.

Pharmacists were asked to document all intervention activities and results of cognitive service interventions, as well as the primary intervention and result in each case. The most frequently reported primary intervention was “contact prescriber by phone or fax”, occurring in 34.6% of all reported cognitive service events. “Patient training” (29.6%) and “patient assessment” (11.9%) were the next most frequently reported activities (Table 7).

Table 7
Frequency of Cognitive Services Interventions

Interventions	Overall			Group A			Group B			Difference*
	N	%	Rate/M	N	%	Rate/M	N	%	Rate/M	p <
Consult prescriber	6994	34.6%	3.15	4712	31.4%	3.58	2282	43.7%	2.5	0.001
Consult R.Ph.	38	0.2%	0.02	2	0.1%	0.02	18	0.3%	0.01	0.002
Consult patient	2175	10.8%	0.98	109	7.3%	0.83	1081	20.7%	1.20	0.001
Patient assessment	2398	11.9%	1.08	213	14.2%	1.62	260	5.0%	0.29	0.001
Patient training	5994	29.6%	2.70	562	37.5%	4.27	367	7.0%	0.41	0.001
Consult Medicaid	183	0.9%	0.08	5	0.4%	0.04	130	2.5%	0.14	0.001
Review profile or chart	127	0.6%	0.06	58	0.4%	0.04	69	1.3%	0.08	0.001
Review lab tests	236	1.2%	0.11	234	1.6%	0.18	2	< 0.1%	o.oc	0.001
Review literature	140	0.7%	0.06	16	0.1%	0.01	124	2.4%	0.14	0.001
Other	1941	9.6%	0.87	1055	7.0%	0.80	886	17.0%	0.98	0.001
Missing	14	< 0.1%	0.01	6	< 0.1%	0.00	8	0.2%	0.01	
TOTAL	20,240	100%		15013	-		5227	-		-

* Rate per thousand Medicaid prescriptions dispensed.

**Differences between groups in the number of documented cognitive services. Differences were assessed using the Chi-square Test (2x2). P values are uncorrected for multiple comparisons.

Again, there were several differences between Group A and Group B pharmacies in the frequency with which specific interventions were performed. The largest differences were for patient training (Group A: **37.5%**, Group B: **7.0%**), consult patient (Group A: **7.3%**, Group B: **20.7%**), and consult prescriber (Group A: **31.4%**, Group B: 43.7%).

The greatest difference in intervention rates per thousand prescriptions were for patient training (4.27 for Group A and 0.41 for Group B), patient assessment (1.62 for Group A and 0.29 for Group B), and consult prescriber (3.58 for Group A and 2.52 for Group B).

The most frequently reported primary result of a cognitive service intervention was “dispense as written” (49.7% of the time), followed by “counsel patient” (20.6%). (Table 8). Significantly, about 27.5% of pharmacists’ interventions resulted in some type of drug therapy change. “Change to drug of choice” was the most common type of drug therapy change, followed by “change dose.” Changes directly related to generic or therapeutic substitution only comprised approximately 2.4% of all documented cognitive services.

Table 8
Results of Cognitive Service Interventions

Results	Overall			Group A			Group B			Diff- erence [*]
	<u>N</u>	<u>%</u>	<u>Rate/M</u> [*]	<u>N</u>	<u>%</u>	<u>Rate/M</u> [*]	<u>N</u>	<u>%</u>	<u>Rate/M</u> [*]	<u>p</u> <
Change to drug of choice	2010	9.9%	0.91	1272	8.5%	0.97	738	114.1%	0.82	0.001
Add Rx drug therapy	331	1.6%	0.15	246	1.6%	0.19	85	1.6%	0.09	0.951
Substitution generic	308	1.5%	0.14	147	1.0%	0.11	161	3.1%	0.18	0.001
Substitution therapeutic	189	0.9%	0.09	107	0.7%	0.08	82	1.6%	0.09	0.001
Add OTC drug therapy	191	0.9%	0.09	85	0.6%	0.06	106	2.0%	0.12	0.001
Change dose	912	4.5%	0.41	607	4.0%	0.46	305	5.8%	0.34	0.001
Change regimen/duration of use	828	4.1%	0.37	479	3.2%	0.36	349	6.7%	0.39	0.001
Discontinue drug	226	1.1%	0.10	151	1.0%	0.11	75	1.4%	0.08	0.011
Do not dispense	613	3.0%	0.28	324	2.2%	0.25	289	5.5%	0.32	0.001
Counsel patient	4168	20.6%	1.88	3416	22.8%	2.59	752	14.4%	0.83	0.001
Referral	386	1.9%	0.17	265	1.8%	0.20	121	2.3%	0.13	0.012
Dispense as written	10057	49.7%	4.53	7905	52.7%	6.01	2152	41.2%	2.38	0.001
Missing:	21	< 0.1%	0.01	9	0.1%	0.01	12	0.2%	0.01	-
TOTAL	20,240	100%		15013	-		5227	-		

* Rate per thousand Medicaid prescriptions dispensed.

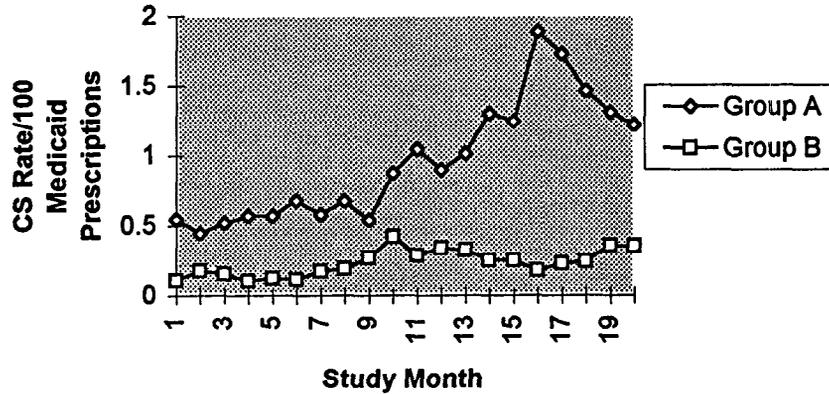
**Differences between groups in the number of documented cognitive services. Differences were assessed using the Chi-square Test (2x2). P values are uncorrected for multiple comparisons.

Again there were a few substantial differences between Group A and Group B pharmacies in the frequency of occurrence of specific results of cognitive services. The largest differences between groups were for dispense as written (Group A: **52.7%**, Group B: **41.2%**), consult patient (Group A: **22.8%**, Group B: **14.4%**), and change to drug of choice (Group A: **8.5%**, Group B: 14.1%). Expressed as a rate per thousand prescriptions, the greatest differences in rates was for dispense as written (6.01 for Group A; 2.38 for Group B), and counsel patient (2.59 for Group A, and 0.83 for Group B).

We tracked the rate of problem documentation over time for the most prevalent problem types, “case managed patients” and “drug: complex administration”, as well as “patient overuse” and “patient underuse” problems (Figure 5). The pattern of use reflected the overall pattern of cognitive service documents, as shown in Figure 4, with higher documentation rates during the latter months.

Figure 5

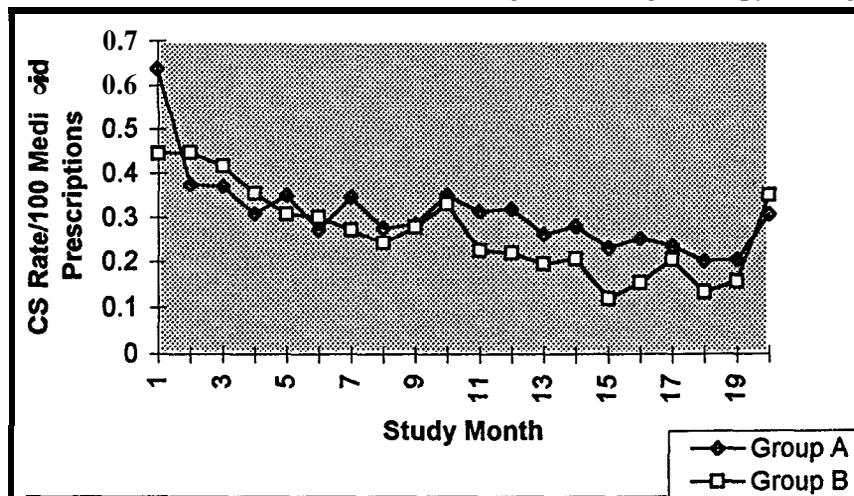
Cognitive Services Rates for Patient Case Managed, Drug Complex Administration, Patient Over-, and Under-use Problems



We similarly tracked the rate of documentation of cognitive service events that resulted in changes in drug therapy to determine if there were any temporal patterns or differences between groups (Figure 6). In general, this rate of documentation approximated 0.3% of all prescriptions dispensed. There was a slight decline in the reporting of these problems over time, until the last few months, where an increase was observed to levels reached during the first few months. Up until the 9th study month, there was little difference between groups in reporting rates. Thereafter, Group A reported more problems until the final month of the study, when the two groups again reported similar rates. Overall, the difference between groups was not statistically significant.

Figure 6

Cognitive Services Rates for Problems Resulting in a Drug Therapy Change



8.5 Cognitive Services by Problem Type

For descriptive purposes, we aggregated cognitive services events by general problem type. “Prescription-related” problems involved problems with the prescription itself, and included “suboptimal drug,” “dose,” and “dose form”. “Drug-related” problems addressed problems with the drug prescribed relative to the patient or to other drugs in the regimen, and included “complex drug administration”, “drug allergy”, “adverse drug reaction”, “drug-drug

interactions”, and “therapeutic duplication” as potential problem types. Finally, “**patient-related**” problems included cases of potential drug “overuse”, “underuse”, “communication difficulty”, and “case managed” patients.

Approximately half (48.4%) of documented cognitive services were *for patient-related* problems. (Table 9) *Drug-related problems* accounted for 32.6% of all cognitive service events, *prescription-related*, and *other non-drug related problems* accounted for 17.6% and 1.4% of documented cognitive services, respectively.

Table 9
Cognitive Service Events by Problem Type

Problem Type	Description	Of All Cognitive Services	
		Number	Percent
<i>Patient Related</i>	overuse, underuse, communication difficulty, case managed patient, other improper use, patient seeking care	9781	48.4%
<i>Drug Related</i>	complex admin., adverse drug reaction, drug-drug, allergy, disease, food interaction, therapeutic duplic.	6593	32.6%
<i>Prescription Related</i>	suboptimal drug, dose, dosage form	3565	17.6%
<i>Other Non-drug problems</i>		285	1.4%
<i>Missing</i>		16	0.1%
TOTAL		20.240	100%

Table 10 describes specific characteristics of *patient-related* problems. Most frequently reported were case-managed patient **problems(73.2%)**. The remainder were patients with communication difficulties and potential cases of drug under or overuse (all under 10%). From our discussions with participating pharmacists, we believe that most of the “case managed” patient problems had underlying potential compliance problems.

Table 10
Frequency Distribution of *Patient-related* Problems

<u>Problem Type</u>	Overall		Group A		Group B		<u>p <</u>
	<u>Number</u>	<u>%*</u>	<u>Number</u>	<u>%*</u>	<u>Number</u>	<u>%*</u>	
Case Managed Patient	7169	73.2	6100	81.9	1069	45.8	0.001
Communication Difficulty	950	9.7	381	5.1	569	24.4	0.001
Overutilization of Drug	793	5.2	446	5.9	347	14.9	0.001
Underutilization of Drug	299	3.1	158	2.1	141	6	0.001
Other	570	5.8	361	4.8	209	8.9	-
Total	9781	100%	7446	100%	2335	100%	-

*Percent of all *patient-related* problems

No single drug or drug class predominated among patient-related problems. The drug classes most commonly involved were, in descending frequency, anticonvulsants (13.8% of all patient-related problems), antidepressants (7.2%), antipsychotics (6.9%), anticoagulants (4.6%), H₂ receptor antagonists (H₂RA's) (3.8%), and Nonsteroidal antiinflammatory drugs (NSAIDs) (3.6%) (Table 11).

Table 11
Drug Classes Most Commonly Involved in *Patient-related* Problems
(Groups A and B Combined)

<u>Drug Class</u>	<u>Frequency of Involvement</u>	
	<u>Number</u>	<u>Percent *</u>
Anticonvulsants	1354	13.8
Antidepressants	704	7.2
Antipsychotics	683	6.9
Anticoagulants	454	4.6
Antiulcer (e.g., H ₂ RAs)	367	3.8
NSAIDs	349	3.6
Antianxiety (e.g., Benzodiazepines)	275	2.8
Calcium Channel Blockers	313	3.2

*Percent of all *patient-related* problems n= 9781

Within Group A, no drug was predominantly reported on cognitive service documents for patient-related problems, although anticonvulsants were the most frequently mentioned (at 10.9% of all patient-related problems reported; see Table 12). The top four most frequently reported drugs were the same for patient-related problems as for all problem types.

Table 12
Drug Classes Most Commonly Involved in *Patient-related* Problems
(Group A)

Drug Class	Frequency	Percent*
Anticonvulsants	813	10.9
Antipsychotics	479	6.4
Anticoagulants	416	5.6
Antidepressants	411	5.5
Antiulcer drugs (e.g., H2RAs)	324	4.4
Antihypertensives	311	4.2
Antianxiety agents (e.g., Benzodiazepines)	273	3.7
Diuretics	223	3.0
Calcium Channel Blockers	222	3.0

*Percent of all patient-related problems (Group A) n= 7446

Group B reported that antidepressants and narcotic analgesics were involved most frequently with patient-related problems, followed by anticonvulsants (Table 13). No single drug accounted for more than 10% of all patient-related cognitive service interventions in this group.

Table 13
Drug Classes Most Commonly Involved in *Patient-related* Problems
(Group B)

Drug Class	Frequency	Percent*
Antidepressants	201	8.6
Narcotic Analgesics	136	5.8
Anticonvulsants	122	5.2
Penicillins	102	4.4
Antiulcer drugs (e.g., H2RAs)	95	4.1
Diuretics	92	3.9
Antianxiety agents (e.g., Benzodiazepines)	86	3.7
Antiasthmatics	81	3.5
Antipsychotics	75	3.2

*Percent of all patient-related problems (Group B) n=2335

Table 14 shows the intervention activities and results for *case-managed patient* problems, the most common type. The primary interventions were “patient training” (32.6%) and “patient assessment” (27.4%). The most common results for case management patient problems were “dispense as written” (61.3%) and “counsel patient” (34.1%).

Table 14
Cognitive Services for *Case Managed Patients*:
Most Common Interventions and Results

Most Common Intervention	Overall		Group A		Group B	
	Number	%	Number	%	Number	%
Patient training	2334	32.6	2264	37.1	70	6.5
Patient assessment	1965	27.4	1949	32.0	16	1.5
Consult prescriber	307	4.3	649	10.6	94	8.8
Other	2563	35.8	1238*	20.3	889	83.2
Total.	7169	100%	6100	100%	1069	100%

*Includes missing cases = 1

Most Common Primary Result	Overall		Group A		Group B	
	Number	%	Number	%	Number	%
Dispense as written	4395	61.3	3426	56.2	969	90.6
Counsel patient	2445	34.1	2395	39.3	50	4.7
Rx change (any type)	196	2.7	150	2.5	46	4.3
Other	133	1.9	129*	2.1	4	0.4
Total	7169	100%	6100	100%	1069	100%

*Includes missing cases = 4

Among *drug-related* problems, “complex administration” as a problem type predominated (57.1%) (Table 15), though no single drug class was dominant. This problem type was reported significantly more often in Group A (64.0% of the time) than in Group B (27.1% of the time.) The most commonly involved drug classes were anticonvulsants (7.2%), antipsychotics (6.1%), and NSAIDs (5.3%) (Table 16). In comparing groups, antipsychotics and anticonvulsants, in particular, were more frequently reported as drug-related problems by Group A.

Table 15
Frequency of *Drug-related Problem Types*

Problem Type	Overall		Group A		Group B		Difference	
	Number	%	Number	%	Number	%	%	P<
Complex administration	3766	57.1	3435	64.0	331	27.1	36.9	0.001
Other specific problem	901	13.7	667	12.4	234	19.1	6.7	0.001
Drug interaction	609	9.2	394	7.3	215	17.6	10.2	0.001
Therapeutic duplication	477	7.2	287	5.3	190	15.5	10.2	0.001
ADR preventable	298	4.5	273	5.1	25	2.0	3.0	0.001
Drug allergy	425	6.4	241	4.5	184	15.0	10.6	0.001
Other	117	1.8	73	1.4	44	3.6	2.2	0.001
TOTAL	6593		5370		1223			

*Differences between groups in the frequency with which specific problems were assessed using the Chi-square Test (2x2).

Table 16
Drug Classes Most Commonly Involved in Drug-related Problems

Drug Class	All		Group A		Group B		Difference	
	Number	%	Number	%	Number	%	%	P<
ACE inhibitors	50	0.8	42	0.8	8	0.7	0.1	0.641
Antidepressants	261	4.0	211	3.8	50	4.1	0.2	0.797
Antipsychotics	401	6.1	379	7.1	22	1.8	5.3	0.001
Benzodiazepines	50	0.8	34	0.6	16	1.3	0.7	0.014
CA Channel Bl.	122	1.9	113	2.1	9	0.7	1.4	0.001
Digitalis	104	1.6	100	1.8	4	0.3	1.5	0.001
H2RAs	177	2.7	149	2.8	28	2.3	0.5	0.343
NSAIDs	350	5.3	279	5.2	71	5.8	0.6	0.391
Anticonvulsants	473	7.2	437	8.1	36	2.8	5.2	0.001
Anticoagulants	74	1.1	68	1.3	6	0.5	0.8	0.020
All Other Drugs	4404	66.8	3483	64.9	921	75.3	10.4	0.001
Missing	127	1.9	75	1.4	52	4.3	-	-
Total documented CS	6593	100.0%	5370	100.0%	1223	100.0%	-	-

*Differences between groups in the frequency with which specific problems were assessed using the Chi-square Test (2x2).

We also examined the types of drugs involved in therapeutic duplication problems. The most common drugs included NSAIDs (42.6%), anti-ulcer agents (17.3%), and anti-depressants (22.2%) (Table 17).

Table 17
Drug Classes Most Commonly Involved in Drug-related Problems: Therapeutic Duplication

Drug Class	Frequency of Involvement	
	Number	Percent
NSAIDs	69	42.6
Antidepressants	36	22.2
H2RAs	28	17.3
Benzodiazepines	11	6.8
Calcium Channel Blockers	11	6.8
Antipsychotics	5	3.1
Anticonvulsants	5	3.1
Anticoagulants	1	0.6

Among prescription-related problems, “suboptimal drug” was the most commonly documented problem type (48.2%) (Table 18). Group A reported relatively more suboptimal dose problems than did Group B (26.3% vs. 19.3%, respectively). Other differences between groups were relatively minor. Again, a wide variety of drugs were involved. Cough/cold/allergy products (8.5%) and dermatologicals (6.3%) were most common. (Table 19). When suboptimal drug problems were encountered, the most common intervention was “consult prescriber” (89.9%). Approximately 81.8% of the time, some type of change in drug therapy occurred as a result of the intervention. (Table 20).

Table 18
Frequency of *Prescription-related* Problems

Problem Type	All		Group A		Group B		Difference	
	Number	%	Number	%	Number	%	%	p<
Subopt. drug	1717	48.2	994	47.4	723	49.2	1.7	0.314
Subopt. dose	835	23.4	551	26.3	284	19.3	6.9	0.001
Subopt. dosage regimen	551	15.5	301	14.4	250	17.0	2.6	0.032
Subopt. form	254	7.1	142	6.8	112	7.6	0.8	0.339
Subopt. duration	138	3.9	78	3.7	60	4.1	0.4	0.587
Unnecessary drug therapy	70	2.0	29	1.4	41	2.8	1.4	0.003
Total	3565	100%	2095	100%	1470	100%	-	-

*Differences between groups in the frequency with which specific problems were assessed using the Chi-square Test (2x2).

Table 19
Drug Classes Most Commonly Involved in *Prescription-related* Problems

Drug Class	All		Group A		Group B	
	Number	%	Number	%	Number	%
Cough/Cold/Allergy	304	8.5	203	9.7	101	6.9
Dermatological	224	6.3	147	7.0	77	5.2
Narcotic analgesics	173	4.9	94	4.5	79	5.4
Penicillins	168	4.7	98	4.7	70	4.8
Antiulcer	158	4.4	93	4.4	65	4.4
NSAIDs (& related drugs)	142	4.0	85	4.1	57	3.9
Cephalosporins	123	3.5	79	3.8	44	3.0
All Other Classes	2273	63.8	1296	61.9	977	66.5
Total Rx-related problem!	3565	100%	2095	100%	1470	100%

Table 20
Suboptimal Drug:
Most Commonly Reported Interventions and Results

Category	Description	Overall		Group A		Group B	
		Number	%	Number	%	Number	%
<i>Intervention</i>	Consult prescriber	1544	89.9	952	95.8	592	81.9
	Other	173	10.1	42	4.2	131	22.1
	TOTAL	1717	100%	994	100%	723	100%
<i>Result</i>	Change to drug of choice	1077	62.7	716	72.0	361	49.9
	Generic substitution	212	12.3	100	10.1	112	15.5
	Dispense as written	172	10.0	42	4.2	130	18.0
	Therapeutic substitution	116	6.8	67	6.7	49	6.8
	Other	140	8.2	69	6.9	71	9.8
	TOTAL	1717	100%	994	100%	723	100%

Missing = 0, both groups.

8.6 Drug Category Analyses

The frequency of cognitive services intervention activity by specific therapeutic category of drug was investigated by focusing on the eight drug categories for which objective screening criteria have been developed (i.e., the “screener” drugs), as well as two other drug categories, for which drug taking compliance and close monitoring is generally considered essential to positive health care outcomes: anticonvulsants and anticoagulants (i.e., **warfarin**). Cognitive services activities are described in three ways:

- 1) the frequency of reporting of cognitive services for drugs within category as a percent of all cognitive services;
- 2) pharmacy group differences in cognitive services intervention rates per hundred prescriptions of each type across time; and
- 3) the most common problems, interventions, and results by drug category.

Table 2 1 displays how frequently cognitive services were performed for drugs within category, expressed as a percentage of all cognitive services, overall and within group. Overall, the highest number of interventions were for anticonvulsants (on average 7.2% of all interventions), followed by antipsychotics (5.0%) and antidepressants (4.9%). There were several cases where the reporting frequency differed between groups. For example, significantly more anticoagulant and antipsychotic interventions were documented in Group A than Group B, while more antidepressants were documented in Group B.

Table 2 1
Number of Cognitive Service Interventions by Selected Drug Category

Drug Class	Overall		Group A		Group B		Diff. ***I (p<)
	N*	%**	N*	%**	N*	%**	
ACE inhibitors	378	1.9	313	2.1	65	1.2	0.001
Anticoagulants	507	2.5	491	3.3	16	0.3	0.001
Anticonvulsants	1458	7.2	1271	8.5	187	3.6	0.001
Antidepressants	986	4.9	683	4.5	303	5.8	0.001
Antipsychotics	1021	5.0	890	5.9	131	2.5	0.001
Benzodiazepines	361	1.8	264	1.8	97	1.9	0.647
CA Channel Bl.	431	2.1	369	2.5	62	1.2	0.001
Digitalis	237	1.2	213	1.4	24	0.5	0.001
H2RAs	575	2.8	440	2.9	135	2.6	0.192
NSAIDs	708	3.5	503	3.4	205	3.9	0.053
All Other Drugs	13578	67.1	8860	59.0	3715	71.1	0.001
Total documented cognitive services	20240	100%	15013	100%	5227	100%	-

* number of documented cognitive services

** % of all documented cognitive services

***p values for the Chi-square Test (2x2) are shown

8.6.1 Group Differences. Cognitive services may have been reported more frequently for specific drug categories in one group as opposed to the other because the number of prescriptions dispensed for category drugs also differed between groups. We investigated this possibility by determining intervention rates per 100 prescriptions dispensed within each therapeutic category.

Table 22 shows the **frequency** with which cognitive services were documented by pharmacists in Group A and B, expressed as rates per 100 prescriptions dispensed for drugs in each category. Overall, the intervention rate was the highest for anticoagulants (5.74) followed by anticonvulsants (**2.65**), and digoxin (2.36). When adjusted for the underlying rate of prescriptions dispensed, group differences persisted. With one exception (**benzodiazepines**), the intervention rates were significantly different, and higher in Group A. The largest differences in rates occurred for anticoagulants, antipsychotics and anticonvulsants, calcium channel blockers, digoxin and ACE inhibitors.

Table 22
Cognitive Service Intervention Rates per 100 Prescriptions Dispensed by Drug Category:
Group A vs. B Differences*

Drug Class	Overall	Group A		Group B		Difference
	Mean*	Mean*	St. dev.	Mean*	St. dev.	* (p<)*
ACE inhibitors	1.28	1.70	0.57	0.58	0.52	0.001
Anticoagulants	5.74	7.90	9.47	0.61	0.88	0.003
Anticonvulsants	2.65	3.90	1.96	0.83	0.48	0.001
Antidepressants	1.07	1.37	0.97	0.71	0.43	0.009
Antipsychotics	1.84	2.15	1.71	0.93	0.54	0.006
Benzodiazepines	1.22	1.33	0.56	1.00	0.76	0.128
CA Channel Bl.	0.88	1.17	0.57	0.36	0.24	0.001
Digoxin	2.36	2.99	1.48	0.82	1.42	0.001
H2RAs	1.39	1.71	1.42	0.87	0.42	0.019
NSAIDs	1.03	1.30	1.10	0.68	0.48	0.030

* means are **rates per 100 prescriptions dispensed for drugs in each category**, determined across study months (n=20) for all pharmacies in each group. The unit of **analysis** is study group-month. Pharmacies were included only for the months in which they were enrolled in the demonstration.

** based on Student's *t*-test results.

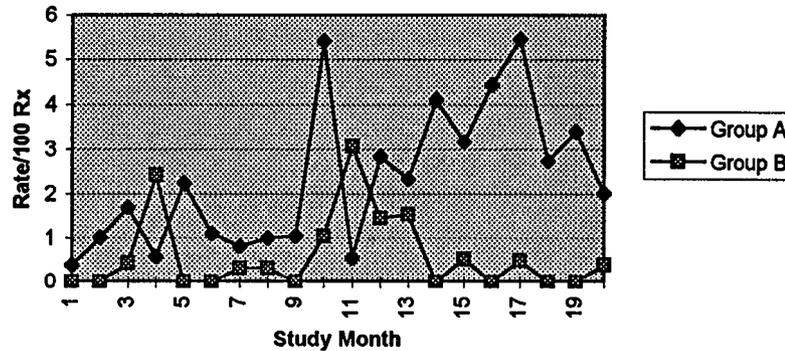
8.6.2 Intervention rates, by selected drug category. An examination of changes in drug problem intervention rates across study months revealed no secular trends. Group-specific rates, did, however, differ. Intervention rates overall for Group B remained relatively constant across time. Intervention rates for Group A, on the other hand, remained constant and were often indistinguishable from Group B rates for only the first 9 months of the demonstration. Thereafter, intervention rates increased for Group A, followed by a gradual decline in the last months of the demonstration. Intervention patterns for specific drug categories are further described below.

The intervention rate for anticoagulants was consistently higher for Group A than for Group B across all study months (Figure 7). The rate peaked for Group A during the 12th

through 14th study months at over 6 per 100 prescriptions dispensed. In contrast, the intervention rate for Group B remained relatively constant over the period.

Figure 7

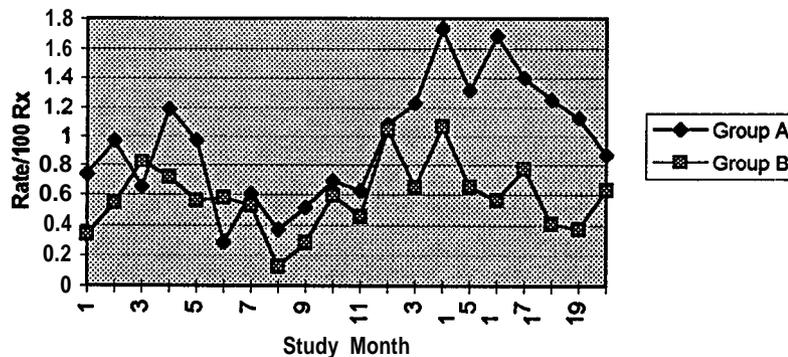
Intervention Rates: Anticoagulants



The documentation rates for NSAIDs were low overall and indistinguishable between Groups A and B up to the 13th study month (Figure 8). Thereafter, the rate increased to slightly for Group A during months 14 through 16, while remaining relatively constant for Group B. Towards the end of the study the intervention rate for Group A declined to once again approximate that for Group B.

Figure 8

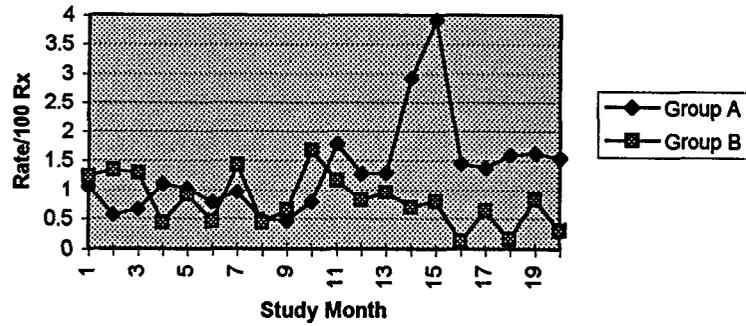
Intervention Rates: NSAID



The intervention rate for H2RAs approximated one per 100 prescriptions dispensed, and again was essentially identical for Groups A and B through study month 13 (Figure 9). Thereafter, the intervention rate for Group A increased, while remaining low for Group B. For two months, the rate for Group A more than doubled to nearly 4 per 100 prescriptions, but with this exception no group exceeded two per 100 dispensed prescriptions for any study month.

Figure 9

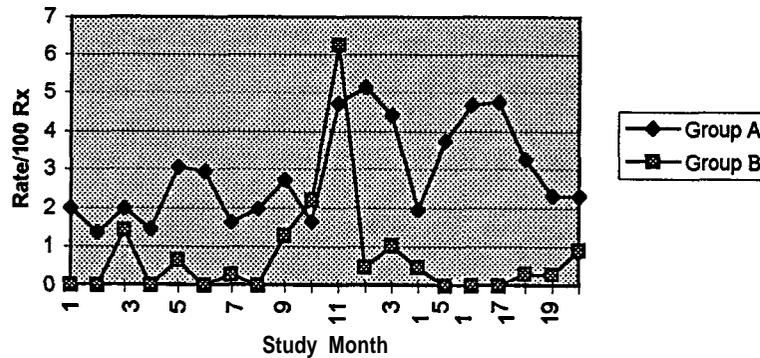
Intervention Rates: H2RA



Cognitive services intervention rates for digoxin ranged between 2 and 5 per 100 dispensed prescriptions for Group A pharmacies (Figure 10). The rates were again lower for Group B pharmacies with the exception of two study months. No secular pattern was observed across study months.

Figure 10

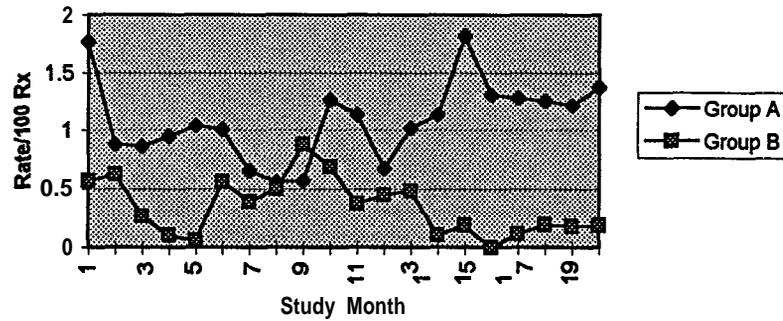
Intervention Rates: Digoxin



Cognitive services intervention rates for calcium channel blockers followed the same general pattern as for digoxin, although the rates were lower overall (Figure 11). The intervention rate never exceeded 2 per hundred prescriptions. Group A rates showed more variability over study months than did the rates for Group B.

Figure 11

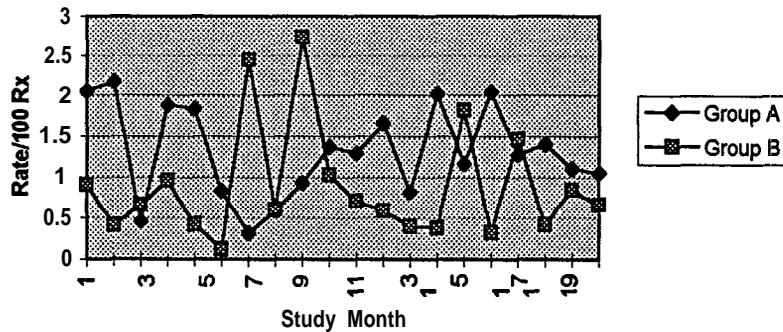
Intervention Rates: Calcium Channel Blockers



Cognitive services intervention rates for benzodiazepines showed the most uneven pattern over study months but remained low, only approaching 2.5 prescriptions per month on two occasions (Figure 12). The intervention rates for Group A and Group B were essentially indistinguishable across study months.

Figure 12

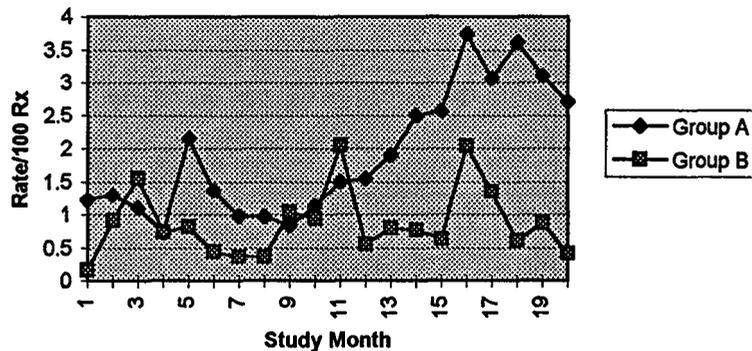
Intervention Rates: Benzodiazepines



Cognitive services rates for antipsychotics followed the trend for NSAIDs, digoxin, and H2RAs (Figure 13). Through the twelfth study monthly the rates were approximately the same for two groups, approximating 1 per hundred prescriptions. Thereafter, the rate for Group A increased to a high of 3.5, while the rate for Group B remained relatively constant.

Figure 13

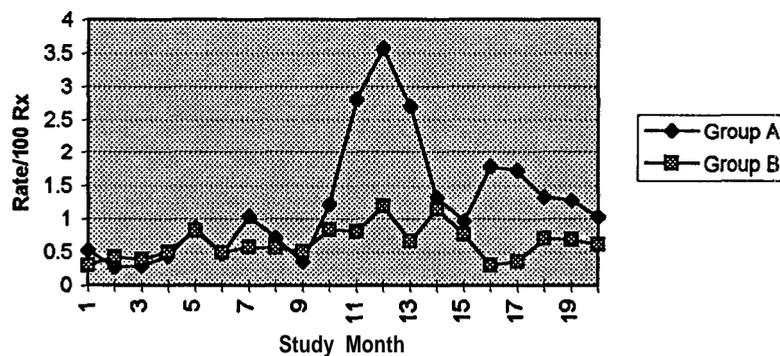
Intervention Rates: Antipsychotics



The cognitive services intervention rate for antidepressants remained relatively low during most study months approximating 0.5 to 1 problem per 100 Medicaid prescriptions dispensed (Figure 14). A curious peak in intervention rates occurred during months 11 through 13 to a high of 3.5, followed by a decline to a level only slightly above prior levels. With this exception, differences in intervention rates between groups were minimal.

Figure 14

Intervention Rates: Antidepressants



8.6.3 Problems, interventions and results, by selected drug category. The following tables (Tables 23 - 33) show the frequency of reported problems, interventions, and results by drug class for Groups A and B. For consistency, we examined cognitive services activity for the same drug classes identified above. For the sake of brevity, we report only those problems, interventions, and result events occurring 20 or more times in Group A or B.

One consequence of performing multiple statistical tests within each drug category is the increased likelihood of finding statistical significance due to chance alone. However, within drug category and problem-intervention-result type, the findings were usually conclusive; either the values were close to zero (indicating that the difference between groups were statistically significant, and highly *unlikely* to be the result of chance alone), or they were substantially higher than 0.05 (clearly indicating no statistical difference between groups). We selectively

highlight only the largest statistically significant differences between the most common problems, interventions and results.

There were several similarities and some differences across drug categories in the types of reported problems, interventions and results. In most cases, “case managed patient” was the most common problem type, usually followed by “drug: complex administration.” This pattern held for each drug category, as well as for the “all other” drug category. It also held across pharmacy groups.

The most common types of interventions were “consult prescriber” and “patient training;” the most common primary results were “dispense as written,” and “counsel patient.” Group differences were observed in patterns of problems, interventions, and results by drug category. “Dispense as written” and “counsel patient” were more common primary results among pharmacists in Group A as opposed to Group B, while interventions resulting in drug therapy change were relatively more frequent in Group B. This was true for antidepressants, H2RAs, and “all other” drugs, while the opposite was true for anticoagulants. While the proportionate number of interventions was sometimes higher for Group B, the absolute number of interventions resulting in drug therapy change remained higher in Group A (because Group A pharmacists performed more cognitive services overall).

For ACE inhibitors (Table 23), approximately five times as many cognitive services were attributed to Group A pharmacists, as opposed to Group B pharmacists. “Patient assessment” was the primary intervention in Group A, while “consult prescriber,” followed by “other” were the most common among Group B. “Counsel patient” and “dispense as written,” the most common primary results, comprised 93% of the interventions in Group A and 69% in Group B.

Table 23*
Type of Cognitive Service Performed by Drug Class: ACE Inhibitors

		Group A		Group B		Diff.***
		<u>N</u>	%**	<u>N</u>	%**	Sig. (p<)
Primary Problem	Patient case managed	238	76.0	26	40.0	0.001
Primary Intervention	Patient assessment	148	47.3	0	0	0.001
	Consult prescriber	57	18.2	22	33.8	0.011
	Other	50	16.0	25	38.5	0.001
	Patient training	35	11.2	2	3.1	0.045
Primary Result	Counsel patient	168	53.7	8	12.3	0.001
	Dispense as written	123	39.3	37	56.9	0.009
Total Rx in class with C.S. interventions		313		65		

*For the sake of brevity, we report only the problem, intervention, and result events that occurred 20 or more times in Group A or B.

**percent of all documented cognitive services events per drug category

*** differences assessed using 2x2 Chi-square tests. For small numbers, the Fishers Exact Test was used. P values are uncorrected for multiple comparisons.

For antidepressants (Table 24), Group A pharmacists documented over twice as many cognitive services interventions as did pharmacists in Group B. The primary problem categories, “patient case managed” and “drug complex administration,” comprised 64% of all problem types in Group A, and 54% of problem types in Group B. “Consult prescriber” and “patient training” were again the most common primary interventions, documented in 65% of all problems in Group A and 31% in Group B. “Dispense as written” and “counsel patient” were the most common primary results (comprising 81% of documented interventions in Group A and 75% in Group B). A drug therapy change (e.g., change dose, dosage form, do not dispense) occurred in 11.5% of all interventions in Group A and 21% in Group B.

Table 24*
Type of Cognitive Service Performed by Drug Class: Antidepressants

		Group A		Group B		Diff.*** (p<)
		<u>N</u>	%**	<u>N</u>	%**	
Primary Problem	Patient case managed	336	49.3	154	50.8	0.637
	Drug complex admin.	100	14.7	11	3.6	0.001
	Drug other problem	52	7.6	8	2.6	0.003
	Patient overuse	41	6.0	24	7.9	0.263
	Drug-drug interaction	29	4.3	15	5.0	0.621
	Suboptimal dose	29	4.3	17	5.6	0.482
	Drug therapeutic duplication	24	3.5	12	4.0	0.730
	Patient underuse	20	2.9	18	5.9	0.023
Primary Intervention	Consult prescriber	226	33.1	87	28.7	0.173
	Patient training	219	32.1	6	2.0	0.001
	Other	117	17.1	140	46.2	0.001
	Patient Assessment	68	10.0	7	2.3	0.001
	Consult patient	43	6.3	50	16.5	0.001
Primary Result	Dispense as written	442	64.8	196	64.7	0.993
	Counsel patient	107	15.7	30	9.9	0.016
	Change dose	42	6.2	15	5.0	0.457
	Change dose form	22	3.2	26	8.6	0.001
	Do not dispense	14	2.1	23	7.6	0.001
Total Rx in class with C.S. interventions		682		303		

* For the sake of brevity, we report only the problem, intervention, and result events that occurred 20 or more times in Group A or B.

** percent of all documented cognitive services events per drug category

*** differences assessed using 2x2 Chi-square tests. For small numbers, the Fishers Exact Test was used. P values are uncorrected for multiple comparisons.

For antipsychotics (Table 25), the pattern of more frequent interventions in Group A continued, as there were more than seven times more interventions in Group A than in Group B. “Patient case managed” was the most numerous problem type in both groups. “ADR preventable” also comprised 25% in Group A but there were none in Group B. The two groups differed considerably in terms of types of interventions documented. For Group A, “patient

training” and “review lab results” were the most common primary interventions, while “consult prescriber” and “other” were the most common in Croup B. The most common primary result was “dispense as written” in each group (group A: 79%; Croup B: 62%).

Table 25*
Type of Cognitive Service Performed by Drug Class: Antipsychotics

		Croup A		Group B		Diff.***
		N	%**	N	%**	(p<)
Primary Problem	Patient case managed	459	51.6	64	48.9	.561
	ADR: preventable	226	25.4	0	0	0.001
	Drug complex admin.	127	14.3	7	5.3	0.005
Primary Intervention	Patient training	392	44.0	14	10.7	0.001
	Review lab results	226	25.4	0	0	0.001
	Consult prescriber	121	13.7	37	28.3	0.001
	Other	56	6.3	46	35.1	0.001
	Patient Assessment	47	5.3	2	1.5	0.061
	Consult patient	46	5.2	14	10.7	0.012
Primary Result	Dispense as written	707	79.4	81	61.8	0.001
	Counsel patient	132	14.8	15	11.5	0.303
Total Rx in class with C.S. interventions		890		131		

* For the sake of brevity, we report only the problem, intervention, and result events that occurred 20 or more times in Group A or B.

** percent of all documented cognitive services events per drug category

*** differences assessed using 2x2 Chi-square tests. For small numbers, the Fishers Exact Test was used. P values are uncorrected for multiple comparisons.

There were relatively few documented interventions for benzodiazepines (Table 26). “Patient case managed” again predominated as a problem type in both groups. “Patient training” was the predominant intervention in Croup A while “consult prescriber” was most common in Croup B. In 87% of the interventions in Croup A and 61% of the interventions in Croup B, the result was “dispense as written” or “counsel patient”.

Table 26*
Type of Cognitive Service Performed by Drug Class: Benzodiazepines

		Group A		Group B		Diff.***
		N	%	N	%**	(p<)
Primary Problem	Patient case managed	189	11.6	45	46.4	0.001
Primary Intervention	Patient training	153	58.0	0	0	0.001
	Consult prescriber	82	31.1	44	45.4	0.012
	Other	2	0.8	33	34.0	0.001
Primary Result	Dispense as written	172	65.2	56	57.7	0.195
	Counsel patient	57	21.6	3	3.1	0.001
Total Rx in class with C.S. interventions		264		97		

* For the sake of brevity, we report only the problem, intervention, and result events that occurred 20 or more times in Group A or B.

** percent of **all** documented cognitive services **events per drug category**

*** differences assessed using 2x2 Chi-square tests. For **small** numbers, the Fishers Exact Test was used. P values are uncorrected for multiple comparisons.

Interventions for calcium channel blockers (Table 27) occurred about six times as frequently for Group A as for Group B pharmacies. "Patient case managed" was the most common primary problem type, occurring about half the time in Group A, and about 30% of the time in Group B.

Table 27*
Type of Cognitive Service Performed by Drug Class: Calcium Channel Blockers

		Group A		Group B		Diff.***
		N	%**	N	%**	(p<)
Primary Problem	Patient case managed	197	53.4	18	29.0	0.000
	Drug complex admin.	64	17.3	0	0	0.000
	Drug other problem	23	6.2	2	3.2	0.556
Primary Intervention	Patient Assessment	118	32.0	2	3.2	0.000
	Consult prescriber	86	23.3	33	53.2	0.000
	Patient training	82	22.2	0	0	0.000
	Other	55	14.9	18	29.0	0.006
	Consult patient	26	7.0	5	8.1	0.790
Primary Result	Dispense as written	187	50.7	26	41.9	0.203
	Counsel patient	126	34.1	9	14.5	0.002
Total Rx in class with C.S. interventions		369		62		

* For the sake of brevity, we report only the problem, intervention, and result events that occurred 20 or more times in Group A or B.

** percent of **all** documented cognitive services **events per drug category**

*** differences assessed using 2x2 Chi-square tests. For **small** numbers, the Fishers **Exact** Test was used. P values are uncorrected for multiple comparisons.

The primary interventions were “patient assessment,” “consult prescriber,” and “patient training” in Group A, (78% of the time), but the only notable intervention in Group B was “consult prescriber” (over half the time). The most frequent primary results were “dispense as written” or “counsel patient” (85% of the time in Group A and 56% of the time in Group B).

Among the drug groups specifically examined, digoxin had the fewest interventions (Table 28). Only some 213 interventions were reported for Group A pharmacies and 24 for Group B pharmacies. The primary problem type was again “patient case managed” and the primary intervention type was “patient training.” The prescription was dispensed as written 75% of the time in Group A and 71% of the time in Group B.

Table 28*
Type of Cognitive Service Performed by Drug Class: Digoxin

		Group A		Group B		Diff.***
		N	%**	N	%**	(p<)
Primary Problem	Patient case managed	109	51.2	13	54.2	0.781
	Drug complex admin.	84	39.1	1	4.2	0.001
	Patient assessment	36	16.9	0	0	0.03 1
Primary Intervention	Patient training	140	65.7	4	16.7	0.001
	Patient assessment	36	16.9	0	0	0.03 1
Primary Result	Counsel patient	50	23.5	3	12.5	0.221
	Dispense as written	159	74.6	17	70.8	0.685
Total Rx in class with C.S. interventions		213		24		

* For the sake of brevity, we report only the problem, intervention, and result events that occurred 20 or more times in Group A or B.

** percent of **all** documented cognitive services events **per drug category**

*** **differences** assessed using 2x2 Chi-square tests, For small numbers, the Fishers Exact Test was used. P values are uncorrected for multiple comparisons.

Interventions for **H₂RAs** numbered 440 in Group A and 135 in Group B (Table 29). Within Group A, the most common problem type was again patient case managed (**46%**), followed by “drug: complex administration” (19%). Within Group B, it was “patient case managed” (31%). Again, the most common interventions were “patient training,” “consult prescriber,” and “other.” Group B pharmacists consulted the prescriber relatively more frequently than did pharmacists in Group A. While the most frequent result of the intervention was again “dispense as written”, Group B effected a “change to drug of choice” proportionally twice as often as Group A.

Table 29*
Type of Cognitive Service Performed by Drug Class: Histamine Antagonists (H2RAs)

		Group A		Group B		Diff.***
		N	%**	N	%**	(p<)
<i>Primary Problem</i>	Patient case managed	200	45.5	42	31.1	0.003
	Drug complex admin.	83	19.2	0	0	0.001
	Drug other problem	23	5.2	5	3.7	0.472
	Patient overuse	17	3.9	14	10.4	0.003
	Drug-drug interaction	22	5.0	14	10.4	0.024
	Drug therapeutic duplication	20	4.5	8	5.9	0.514
<i>Primary Intervention</i>	Patient training	173	39.3	3	2.2	0.001
	Consult prescriber	147	33.4	65	48.2	0.002
	Other	49	11.1	42	31.1	0.001
	Patient assessment	32	7.3	7	5.2	0.399
	Consult patient	35	8.0	16	11.9	0.164
<i>Primary Result</i>	Dispense as written	292	66.4	61	45.2	0.001
	Counsel patient	61	13.9	12	8.9	0.129
	Change: drug of choice	23	5.2	15	11.1	0.016
Total Rx in class with C.S. interventions		440		135		

* For the sake of brevity, we report only the problem, intervention, and result events that occurred 20 or more times in Group A or B.

** percent of all documented cognitive services events per drug category

*** differences assessed using 2x2 Chi-square tests. For small numbers, the Fishers Exact Test was used. P values are uncorrected for multiple comparisons.

Among NSAIDs (Table 30), “patient case managed”, followed by “drug complex administration” were the most common problem types in Group A, while “patient case managed” and “suboptimal drug” or “drug: therapeutic duplication” were the most common problem types in Group B. It was not clear why “drug complex administration” occurred so frequently as a problem type in Group A. One possible explanation is that some pharmacists may have interpreted this category to include patients with complex drug regimens because of polydrug therapy. “Patient training” was the most common intervention type in Group A (45.1%), but rarely occurred in Group B (2.4%). The prescriber was consulted 37% of the time in Group A and 45% of the time in Group B. The prescription was dispensed as written 61% of the time in Group A and 41% of the time in Group B. A change in drug therapy was the primary result in 28% of the interventions in Group B, but only 18% of the interventions in Group A. The most common change was “change to drug of choice” in each group.

Table 30*
Type of Cognitive Service Performed by Drug Class: NSAIDs

		Group A		Group B		Diff.*** (p<)
		N	%**	N	%	
Primary Problem	Drug complex admin.	167	33.2	5	2.4	0.001
	Patient case managed	109	21.7	44	21.5	0.952
	Suboptimal drug	41	8.2	28	13.7	0.025
	Drug therapeutic dupli-	39	7.8	30	14.6	0.005
	Drug other problem	33	6.6	5	2.4	0.027
	Suboptimal dose	28	5.6	8	3.9	0.361
	Primary Intervention	Patient training	227	45.1	5	2.4
Consult prescriber		186	37.0	93	45.4	0.015
Other		24	4.8	43	21.0	0.001
Patient Assessment		26	5.2	7	3.4	0.315
Consult patient		37	7.4	44	21.5	0.001
Primary Result	Dispense as written	305	60.6	84	41.0	0.001
	Counsel patient	55	10.9	27	13.2	0.399
	Change: drug of choice	44	8.7	21	10.2	0.532
	Change dose	29	5.8	16	7.8	0.313
	Do not dispense	18	3.6	20	9.8	0.001
Total Rx in class with C.S. interventions		503		205		

* For the sake of brevity, we report only the problem, intervention, and result events that occurred 20 or more times in Group A or B.

** percent of all documented cognitive services **events per drug category**

*** differences assessed using 2x2 Chi-square tests. For small numbers, the Fishers Exact Test was used. P values are uncorrected for multiple comparisons.

Interventions involving anticonvulsants (Table 3 1) were nearly seven times more common in Group A than in Group B.. The most common problem types were patient case managed and drug complex administration. Patient training occurred in 68% of the interventions in Group A, and 17% of the interventions in Group B. The prescriber was consulted in 13% of the instances in Group A but 36% in Group B. The primary result in both groups was “dispense as written” (83.4% in Group A; 73.8% in Group B).

Table 3 1 *
 Type of Cognitive Service Performed by Drug Class: Anticonvulsants

		Group A		Group B		Diff.*** (p<)
		N	%**	N	%**	
Primary Problem	Patient case managed	797	62.7	105	56.1	0.085
	Drug complex admin.	403	31.7	24	12.8	0.001
	Drug-drug interaction	24	1.9	8	4.3	0.055
Primary Intervention	Patient training	864	68.0	32	17.1	0.001
	Consult prescriber	169	13.3	67	35.8	0.001
	Patient Assessment	86	6.8	4	2.1	0.014
	Other	84	6.6	54	28.9	0.001
	Consult patient	64	5.0	25	13.4	0.001
Primary Result	Dispense as written	1060	83.4	138	73.8	0.001
	Counsel patient	176	13.8	16	8.6	0.046
Total Rx in class with C.S. interventions		1271		187		

* For the sake of brevity, we report only the problem, intervention, and result events that occurred 20 or more times in Group A or B.

. * percent of all documented cognitive services events per drug category

*** differences assessed using 2x2 Chi-square tests. For small numbers, the Fishers Exact Test was used. P values are uncorrected for multiple comparisons.

Interventions involving anticoagulants (Table 32) occurred disproportionately in Group A. “Patient assessment” and “patient training” were the most common intervention types, and “counsel patient” the most common result. A change in dosage regimen occurred in over 20% of the cases in Group A, but not at all in Group B.

Table 32*
Type of Cognitive Service Performed by Drug Class: Anticoagulants

		Group A		Group B		Diff.*** (p<)
		N	%**	N	%**	
<i>Primary Problem</i>	Patient case managed	402	81.9	5	31.3	0.001
	Drug complex admin.	32	6.5	0	0	0.614
	Drug other problem	22	4.5	0	0	1.00
<i>Primary Intervention</i>	Patient Assessment	295	60.1	0	0	0.001
	Patient training	95	19.3	0	0	0.051
	Consult prescriber	40	8.1	9	56.3	0.001
	Consult patient	28	5.7	2	12.5	0.243
	Other	26	5.3	5	31.3	0.002
<i>Primary Result</i>	Counsel patient	285	58.0	2	12.5	0.001
	Dispense as written	98	20.0	12	75.0	0.001
	Change dosage regimen	59	12.0	0	0	0.237
	Change dose	40	8.1	0	0	0.483
Total Rx in class with C.S. interventions		491		16		

* *For the sake of brevity, we report only the problem, intervention, and result events that occurred 20 or more times in Group A or B.*

. * *percent of all documented cognitive services events per drug category*

*** *differences assessed using 2x2 Chi-square tests. For small numbers, the Fishers Exact Test was used.*

The “all other drugs” category revealed a generally similar pattern, with “patient case managed,” “drug complex administration,” and “suboptimal drug” as the three most common problem types (Table 33). “Consult prescriber,” closely followed by “patient training” or “consult patient” were the most common interventions. While “dispense as written” was the most common result in both Group A (46% of the time) and Group B (36% of the time), some type of change in drug therapy occurred as the primary result in 29% of the cases in Group A and 45% of the cases in Group B.

Table 33*
Type of Cognitive Service Performed by Drug Class: All Other Drugs

		Group A		Group B		Diff.*** (p<)
		N	%	N	%	
Primary Problem	Patient case managed	3064	32.0	553	13.8	0.001
	suboptimal drug	860	9.0	598	15.0	0.001
	Drug: other problem	478	5.0	201	5.0	0.590
	Suboptimal dose	438	4.6	233	5.8	0.001
	Patient: communication difficulty	349	3.6	530	13.3	0.001
	Patient: overuse	323	3.4	255	6.4	0.001
	Pt. seeking care with symptoms	271	2.8	160	4.0	0.469
	Suboptimal regimen	253	2.6	201	5.0	0.001
	Drug-allergy intolerance.	229	2.4	172	4.3	0.001
	Drug-drug interaction	229	2.4	143	3.6	0.001
	Drug therapeutic duplication	178	1.9	128	3.2	0.001
	Suboptimal dose or dosage form	129	1.3	106	2.7	0.001
	Patient underuse	87	0.9	100	2.5	0.001
	Other non-drug problem	81	0.8	24	0.6	0.001
	Suboptimal duration	66	0.7	46	1.2	0.013
	Pt seeking care: no symptoms.	37	0.4	24	0.6	0.499
	ADR preventable	34	0.4	14	0.4	0.911
	Drug-disease inter.	31	0.3	19	0.5	0.131
	Patient: other improper use	30	0.3	15	0.4	0.726
	Suboptimal: unnecessary	22	0.2	35	0.9	0.001
Primary Intervention	Consult prescriber	3579	37.4	1817	45.5	0.001
	Patient training	3247	33.9	301	7.5	0.001
	Patient assessment	1273	13.3	231	5.8	0.001
	Consult patient	770	8.0	890	22.3	0.001
	Other	583	6.1	472	11.8	0.001
	Consult Medicaid	48	0.5	104	2.6	0.001
	Review profile or chart	35	0.4	49	1.2	0.001
Primary Result	Dispense as written	4360	45.6	1444	36.2	0.001
	Counsel patient	2199	23.0	627	15.7	0.001
	Change to drug of choice	1128	11.8	662	16.6	0.001
	Change dose	444	4.6	240	6.0	0.001
	Change regimen/duration	347	3.6	272	6.8	0.001
	Do not dispense	251	2.6	211	5.3	0.001
	Add Rx therapy	236	2.5	77	1.9	0.100
	Referral	219	2.3	108	2.7	0.021
	Substitution: generic	116	1.2	128	3.2	0.001
	Discontinue drug	100	1.0	51	1.3	0.391
	Substitution: therapeutic	84	0.9	66	1.7	0.001
	Add OTC drug therapy	84	0.9	66	1.7	0.010
Total Rx in class with C.S. interventions		9568		3994		

* For the sake of brevity, we report only the problem, intervention, and result events that occurred 20 or more times in Group A or B.

. * percent of all documented cognitive services events per drug category

*** differences assessed using 2x2 Chi-square tests. For small numbers, the Fishers Exact Test was used. P values are uncorrected for multiple comparisons.

8.7 Characteristics of Patients Receiving Cognitive Services for Selected Problems

Characteristics of patients who were recipients of cognitive services for several of the most common patient or drug regimen-related problems are shown in Tables 34-36. In general, cognitive services were concentrated on a relatively small number of patients. A total of 5273 patients received one or more cognitive services (Table 34). Of these, approximately **three-fourths** received only one cognitive service, 13% received two services, and 14% received 3 or more services.

Table 34
Cognitive Services Received Per Patient

<u># Cognitive Services</u>			
<u>Received</u>	<u># Patients</u>	<u>Frequency (%)</u>	<u>Cumulative %</u>
1	3855	73.1	73.1
2	678	12.9	86.0
3-5	102	7.0	93.0
6-9	370	2.3	95.3
10+	124	4.7	100.0
Total patients	5273		
<i>Mean cognitive services received</i>	<i>2.66</i>		
<i>Standard deviation</i>	<i>8.02</i>		

Differences in the characteristics of patients receiving cognitive services for selected problems (drug: complex administration; patient over-utilization; patient underutilization; and patient: case managed) were examined from two perspectives. First, we examined differences in the characteristics of patients receiving cognitive services for each problem type. Secondly, we examined study group (Croup A vs. B) differences among patients receiving each type of cognitive service.

8.7.1 Number of patients receiving cognitive services, by problem type. Table 35 shows the distribution of patients receiving cognitive services for each type of problem. Even though “case managed patient” was the most commonly reported problem type overall, more *patients* (16.8%) received cognitive services for “suboptimal drug” than for any other single problem type, followed by “case managed patient” problems (10.1%), “suboptimal dose” problems (9.6%), and problems of “patient overutilization” (7.6%). This suggests that “case managed” patients were more likely to have received multiple cognitive services for the same problem.

Table 35
Number of Patients Receiving Cognitive Services, by Problem Type

Problem Type	Overall			Group A		Group B	
	Total patients receiving C.S*	% of all patients receiving C.S	C.S. per patient	# patients	C.S. per patient	# patients	C.S. per patient
Suboptimal drug	1035	16.8%	1.13	584	1.13	451	1.1
Patient case managed	620	10.1%	8.61	501	9.06	119	6.73
Suboptimal dose	588	9.6%	1.04	396	1.05	192	1.03
Patient over utilization	464	7.6%	1.35	249	1.45	215	1.24
Patient communic. diff.	445	7.2%	1.35	217	1.19	228	1.50
Drug: other problem	422	6.9%	1.46	279	1.68	143	1.04
Drug: complex admin.	408	6.6%	4.10	250	5.85	158	1.34
Suboptimal regimen	342	5.6%	1.09	188	1.05	154	1.14
Drug-drug interaction	323	5.3%	1.36	204	1.50	119	1.13
Drug: therapeutic dup.	283	4.6%	1.15	166	1.19	117	1.10
Drug -allergy	221	3.6%	1.07	123	1.09	98	1.05
Pt. seeking care-with sx	197	3.2%	1.14	151	1.15	46	1.11
Patient underutilization	167	2.7%	1.32	86	1.36	81	1.27
Subopt. dose form	166	2.7%	1.11	93	1.05	73	1.19
Other nondrug	135	2.2%	1.11	46	1.09	89	1.12
Suboptimal duration	99	1.6%	1.05	58	1.02	41	1.10
ADR: preventable	60	1.0%	4.58	45	5.76	15	1.07
Drug-disease interaction	42	0.7%	1.07	23	1.04	19	1.11
Unnecessary drug	34	0.6%	1.09	14	1.14	20	1.05
Pt. seeking care-no sx	34	0.6%	1.03	26	1.04	8	1.00
Pt: other impropr. use	31	0.5%	1.03	20	1.05	11	1.00
ADR: observed	26	0.4%	1.00	19	1.00	7	1.00
Drug-food interaction	3	0.0%	1.00	1	1.00	2	1.00
Drug-lab test interaction	0	0.0%					

*The total number of patients does not equal the sum of patients per problem type, as many patients receive cognitive services for different problem types. Records are limited to patients identified from linked cognitive service-prescriptions. Count of cognitive services limited to 2 per patient per day.

Table 35 also shows the number of cognitive services per patient by problem type. For most problem types, patients received only one cognitive service. However, for the “patient case managed” category, patients received, on average, over 8 cognitive services interventions over the entire study time period. For “drug: complex administration” problems, patients received an average of 4.1 cognitive services, and for “preventable adverse drug interactions”, they received an average of 4.6 cognitive services

Table 35a illustrates the pattern of receipt of different cognitive services per patient. The percent of patients, by problem type, who also received a cognitive service for a different

problem type at some point during the study is shown. Among patients with the most prevalent problem types, between 25% and 50% of them also received a cognitive service for some other type of drug therapy problem at some point during the study. However, a wide variety of different problems were usually reported. For example, among patients with reported “drug: complex administration” problems, “patient case managed” was a common second problem type (**12.5%** of the time). Among patients with reported cognitive services for “patient over-utilization” problems, between 5% and 6% of the patients also received cognitive services for “suboptimal drug”, “patient underutilization”, “drug-drug interaction” and “patient case managed” problems. Finally, among patients with reported “suboptimal dose” problems, the most frequent second problem type was “suboptimal drug” but this only occurred 7.3% of the time.

Table 35A
 Frequency of occurrence of different types of problems, per patient

Count of patients distributed according to different Problem Codes for which a Cognitive Service was documented

rob. Code	Problem Description	Total Pts.	1	2	3	4	5	6	11	21	22	23	24	25	26	27	28	29	31	32	33	34	35	41	42	% pts. with 2+ problems		
1	Subopt. drug	1035	*	43	19	10	5	2	26	14	3	9	0	0	4	4	13	23	29	8	13	13	3	19	0	25.1%		
2	Subopt. dose	588	43	*	24	7	4	0	12	12	2	6	0	0	1	3	13	15	19	6	8	15	0	9	0	33.8%		
3	Subopt. regimen	342	19	24	*	7	2	0	13	7	2	0	0	0	3	12	9	10	5	2	10	2	7	1		39.5%		
4	Subopt. doseform	166	10	7	7		*		1	0	1	4	0	1	1	0	0	1	2	6	3	2	1	7	0	2	1	34.3%
5	Subopt. duration	99	5	4	2	1	*	0	3	3	0	0	0	0	1	0	2	6	7	1	3	1	0	2	1		42.4%	
6	Unnecess. drug	34	2	0	0	0	0	*	2	2	0	0	0	0	0	0	1	4	2	0	1	2	0	1	0		50.0%	
11	Drug ther. dup	283	26	12	13	1	3	2	*	24	1	4	0	0	2	2	7	8	13	5	4	11	1	5	0		50.9%	
2 1	Drug-drug inter.	323	14	12	7	4	3	2	24	*	3	5	0	0	1	1	6	7	23	5	1	9	0	5	1		41.2%	
22	Drug-dis. inter	42	3	2	2	0	0	0	1	3	*	0	0	0	0	0	1	0	3	0	0	2	1	0	0		42.9%	
23	Drug allergy	221	9	6	0	1	0	0	4	5	0	*	0	0	0	1	5	1	2	0	0	6	1	3	0		19.9%	
24	Drug-food inter	3	0	0	0	1	0	0	0	0	0	0	*	0	0	0	0	0	0	0	0	0	0	0	0		33.3%	
25	Drug-lab inter	0	0	0	0	0	0	0	0	0	0	*	0	0	0	0	0	0	0	0	0	0	0	0	0		0.0%	
26	ADR: prev.	60	4	1	0	0	1	0	2	1	0	0	0	0	*	0	1	2	3	1	1	2	0	3	0		36.7%	
27	ADR: observed	26	4	3	3	1	0	0	2	1	0	1	0	0	0	*	1	3	2	0	1	2	0	0	1		96.2%	
28	Drug cmplx adm	408	13	13	12	2	2	1	7	6	1	5	0	0	1	1	*	17	15	8	12	51	1	6	7		44.4%	
29	Drug other prob	422	23	15	9	6	6	4	8	7	0	1	0	0	2	3	17	*	21	3	10	11	0	15	4		39.1%	
31	Pt. over util.	464	29	19	10	3	7	2	13	23	3	2	0	0	3	2	15	21	*	25	6	22	4	10	4		48.1%	
31	Pt under-util.n	167	8	6	5	2	1	0	5	5	0	0	0	0	1	0	8	3	25	*	0	11	2	3	1		51.5%	
33	Pt. commun diff.	44	5	1	3	8	2	1	3	1	4	1	0	0	0	1	1	1	2	1	0	6	0	3	4		17.3%	
34	Pt case mgd.	620	13	15	10	7	1	2	11	9	2	6	0	0	2	2	51	11	22	11	7	*	1	5	1		30.5%	
35	Pt other use	31	3	0	2	0	0	0	1	0	1	1	0	0	0	0	1	0	4	2	0	1	*	1	0		54.8%	
41	Pt seeking care-with sx.	197	1	9	9	7	2	2	1	5	5	0	3	0	3	0	6	1	5	1	0	3	3	5	1	*	6	53.3%
42	Pt seeking care-no sx	34	0	0	1	1	1	0	0	1	0	0	0	0	0	0	1	7	4	4	1	4	1	0	6	*	94.1%	

Case managed patients tended to be older than patients receiving cognitive services for drug underutilization, overutilization, or complex administration problems (Table 36). Further, case managed patients tended to receive more cognitive services than did patients **from** the other three problem groups with an average 8.61 cognitive services received, per patient, over the study time period. In contrast, patients receiving services for drug: complex administration received about half this number of cognitive services, and patients either under or over-utilizing drugs received less than one-sixth as many cognitive services (1.3) as did case managed patients.

Patients receiving cognitive services for drug overutilization tended to have more prescription claims (8.2) from more prescribers (4.4) than did patients receiving cognitive services in the other three categories (each patient receiving cognitive services for drug underutilization had, on average, 60.9 claims **from** 4.1 prescribers; for drug: complex administration each received an average of 48.6 prescription claims **from** 3.4 prescribers; and case managed patients each received an average of 70.7 prescription claims from 3.3 prescribers).

8.7.2 Group A vs. Group B differences. In nearly all cases, patients in Group A received more cognitive services for each problem type than patients in Group B (Table 35). We noted no appreciable Group A vs. B differences in characteristics of patients receiving cognitive services for drug under-, or overutilization problems. However, patients receiving services for “drug: complex administration” from Group A pharmacists were about 9 years older, on average, received substantially more prescriptions, and were issued prescriptions by more prescribers than were patients receiving similar cognitive services from pharmacists in Group B. All differences were statistically significant.

Additionally, we note that a patient receiving services for case managed patient problems from Group A pharmacists had, on average, significantly more prescription claims (101.9) during the course of the study, but used fewer pharmacies (1.6) than did a patient receiving case management services from Group B pharmacists (66 prescriptions **from** 2.1 pharmacies).

Table 36
 Characteristics of Patients Receiving Cognitive Services for Selected Problems

Problem Type: 28	Total	Group A	Group B	Difference T test (p<)
Drug complex admin.				
# Pts	408	250	158	(
Age (mean, s.d.)	37.4 (24.3)	41.0 (24.1)	31.4 (23.7)	3.93 (0.001)
# Rx claims /Pt. (mean, s.d.)*	48.6 (65.2)	83.6 (131.0)	40.0 (57.7)	4.60 (0.001)
# prescribers/R. (mean, s.d.)*	3.4 (2.4)	4.0 (2.7)	3.4 (2.6)	2.21 (0.027)
# pharmacies/R. (mean, s.d.)*	1.7 (1.2)	1.7 (1.1)	1.9 (1.5)	-1.41 (0.158)
# CS per patient (mean, s.d.)**	4.10 (9.7)	5.85 (23.34)	1.34 (1.55)	2.42 (<0.02)
Pts receiving Medisets (#, %)	34 (5.5%)			
Problem Type 31				
Overutilization				
# Pts	464	249	215	-
Age (mean, s.d.)	47.6 (19.1)	48.9 (22.2)	45.3 (19.7)	1.11 (0.267)
# Rx claims /Pt. (mean, s.d.)*	82.1 (79.5)	92.8 (88.5)	96.9 (92.6)	-491 (0.624)
# prescribers/R. (mean, s.d.)*	4.4 (3.0)	4.5 (3.1)	4.8 (3.2)	-0.743 (0.458)
# pharmacies/R. (mean, s.d.)*	2.0 (1.7)	2.0 (1.5)	2.1 (2.0)	-0.386 (0.699)
# CS per patient (mean, s.d.)**	1.35 (1.29)	1.45 (2.42)	1.24 (0.72)	1.22 (<0.20)
Pts receiving Medisets (#, %)	7 (1.5%)			
Problem Type 32				
Patient Underutilization				
# Pts	167	86	81	-
Age (mean, s.d.)	47.1 (21.0)	48.9 (22.2)	45.3 (19.7)	1.11 (0.267)
# Rx claims /Pt. (mean, s.d.)*	60.9 (59.1)	79.5 (76.2)	61.8 (56.1)	1.72 (0.087)
# prescribers/Pt. (mean, s.d.)*	4.1 (3.0)	4.0 (2.6)	4.5 (3.4)	-1.08 (0.283)
# pharmacies/Pt. (mean, s.d.)*	1.8 (1.1)	1.62 (1.1)	2.0 (1.2)	-2.44 (0.015)
# CS per patient (mean, s.d.)**	1.32 (.80)	1.36 (1.15)	1.27 (.67)	0.61 (>0.20)
Pts receiving Medisets (#, %)	6 (3.4%)			
Problem Type 34				
Patient Case Managed				
# Pts	620	501	119	-
Age (mean, s.d.)	50.4 (23.4)	50.8 (22.5)	47.4 (27.7)	1.26 (0.208)
# Rx claims /Pt. (mean, s.d.)*	70.7 (64.0)	101.9 (104.8)	66.4 (70.2)	4.45 (0.001)
# prescribers/Pt. (mean, s.d.)*	3.3 (2.4)	3.5 (2.5)	3.6 (2.7)	-2.64 (0.792)
# pharmacies/Pt. (mean, s.d.)*	1.7 (1.0)	1.6 (1.0)	2.1 (1.3)	-3.42 (0.001)
# CS per patient (mean, s.d.)**	8.61 (9.13)	9.06 (11.42)	6.73 (9.38)	2.06 (<0.05)
Pts receiving Medisets (#, %)	156 (25.2%)			

*Represents *prescription* usage during the study period 2/94 through 9/95.

** Count of cognitive services limited to 2perpatientper day.

8.7.3 Dispensing of medications in special packaging. During the course of the demonstration, the Washington State DSHS instituted a policy of allowing pharmacists to dispense prescriptions in unit of use, or Mediset-type containers. Beginning December, 1994, pharmacists were allowed to provide--and be reimbursed for-- up to two **Mediset**-type containers per year for qualifying Medicaid beneficiaries. Qualifying criteria included patients with multiple chronic illnesses, and using multiple prescription drugs. Pharmacists were compensated only for the cost of the container, not for a separate "filling fee" associated with its use.

This policy change was of interest because it coincided with the beginning of a period of higher cognitive services intervention activity overall, particularly for Group A, and particularly for “case-managed” and related problems (Table 36). We examined cognitive services records to determine the number of patients receiving cognitive services for poly-drug therapy problems who also received prescriptions in Mediset-type containers and found it to be quite low. Overall, only 203 containers were billed to, and paid for by the Medicaid program for patients (in Groups A and B combined) with these identified problems. Nearly all of these patients received but one Mediset-type container. The percent of patients who received Mediset-type containers for “drug complex administration,” “drug: overutilization” and “patient overutilization” problems was also low, ranging from 1.5% to 5.5%.

In contrast, about one-quarter of patients identified with “patient case managed” problems received at least one prescription in a Mediset-type container. According to our working definition, case managed patients may be referred to pharmacists by a prescriber, by the Medicaid program, or assigned by the pharmacist. While we captured no data to indicate the source of referral, we did examine the number of patients that were assigned to case management by the State Medicaid program. We asked the State to **identify** which patients from a list of patients who had received cognitive services for case management and related problems they had assigned for case management. Of 617 identified patients, only 18 (3%) were State-assigned. Most State-assigned patients were assigned for reasons of drug misuse/overuse.

8.8 Cognitive Service Intervention Times

Pharmacists were thorough in recording intervention times on each cognitive service document; 98% of the cognitive services by Group A pharmacies had reported times, as did 99% of Group B pharmacies. Pharmacists reported an average of 7.5 minutes per problem intervention (Table 37). However, the amount of time reported was highly variable, as evidenced by a standard deviation of 7.6 minutes.

Table 37
Pharmacists’ Self-reported Time per Cognitive Service

	Overall		Group A		Group B	
mean	7.5 min.		7.9 min.		6.5 min.	
st. dev.	7.6 min.		7.0 min.		8.8 min.	
median	5.0 min		5.0 min		5.0 min	
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
1-6 min.	12862	65	8931	60	3931	75
7-19	5758	29	4754	32	1004	19
20-29	761	4	672	5	89	2
30+	463	2	330	2	133	3

Approximately two-thirds of problem interventions took reportedly 6 minutes or less, and 94% of reported problems took less than 20 minutes. Group A pharmacists reported expending 1.4 more minutes, on average, to perform cognitive services than Group B pharmacists (7.9 minutes vs. 6.5 minutes; student T-test, significant at $p < 0.0011$). Cognitive services of over 6 minutes were reported by Group B pharmacists 25% of the time and for Group A pharmacists 40% of the time.

We next examined the average amount of reported pharmacist time per problem type and main intervention (Table 38). Observed adverse drug reactions (although an infrequent event) took the most time, on average, followed by “patient case managed.” Among interventions, “consult Medicaid” took the most time (although an infrequent activity overall), followed by “consult pharmacist at another pharmacy” (also an infrequent activity) and “consult prescriber”.

Table 38
Time per Cognitive Service for Selected Problems and Interventions
(Groups A and B)

by Problem Type (selected)	N	%	Mean Time (minutes)
Observed adverse drug reaction	39	0.2	10.8
Patient case managed	7069	36.9	9.7
Drug complex administration	3743	19.6	5.6
Suboptimal drug	1702	8.9	6.8
Suboptimal dosage	816	4.1	6.3
by Primary Intervention (selected)			
Patient training	5949	30.0	8.4
Consult prescriber by phone/fax	6118	30.8	7.1
Patient assessment	2344	11.8	7.3
Consult patient	1996	10.1	6.1
Consult Medicaid	180	0.9	14.8

We further explored Group differences in average reported times to perform cognitive services. Group differences may have occurred because a different mix of types of problems and interventions were reported each requiring different amounts of time. For example, we observed earlier that “patient case managed” and “drug complex administration” was reported much more frequently as a problem type, and “patient training” as an intervention activity, by Group A pharmacists (Tables 6 and 7). It is also possible that pharmacists in each group simply directed more time to the resolution of some problems than for others. To explore this possibility, we examined group differences in mean amounts of time, per problem and per intervention activity.

Mean reported times between Group A and Group B pharmacists were found to differ for several problem types. (Table 39) Problem types taking significantly more time, on average, in Group A included “case managed patient” (10.5 minutes in Group A vs. 5.0 minutes in Group B), “suboptimal drug” (7.3 minutes in Group A vs. 6.0 minutes in Group B), “patient communication difficulty” (7.0 minutes in Group A vs. 3.9 minutes in Group B), and “drug: therapeutic duplication” (6.4 minutes in Group A vs. 3.4 minutes in

Group B). On the other hand, “drug: complex administration” problems took an average of 8.2 minutes for Group B but 5.3 minutes for Group A.

Table 39
Mean Reported Time by Problem and Primary Intervention

By Problem Type:	Total		Group A		Group B		p<
	N	% of total cases	N	Mean Time	N	Mean Time	
Patient case managed	7069	34.9	6006	10.5	1063	5	C
Drug: complex administration	3743	18.5	3419	5.3	324	8.2	C
Suboptimal drug	1702	8.4	986	7.3	716	6	0.064
Patient communication difficulty	944	4.7	380	7	564	3.9	C
Other drug-specific problem	888	4.4	660	9.3	228	9.4	0.915
Suboptimal dose	816	4.0	539	6.1	277	6.8	0.12
Patient overutilization	784	3.9	439	6.6	345	6	C
Drug-drug interaction	474	2.3	261	5.9	213	6.7	0.82
Drug therapeutic duplication	452	2.2	268	6.4	184	3.4	0.02
Patient seeking care-with symptoms	444	2.2	283	7.3	161	6.4	0.065
Adverse drug reaction -preventable	295	1.46	270	4.4	25	5.9	0.031
Other non-drug problem	277	1.37	89	7.5	188	10.6	0.025
Drug-disease	69	0.34	41	6.6	28	6.6	0.98
Patient seeking care-no symptoms	65	0.32	40	6.5	25	6.7	0.821
Patient other improper use of drug	55	0.27	36	11.2	19	9.1	ns
Adverse drug reaction -observed	39	0.19	29	8.8	10	16.8	0.203
Missing (Problem type)	2,124	10.50	1267		857		
Total problems	20,240	100%	15,013		5,227		
By Intervention:							
Consult prescriber by phone/fax	6118	30.2	3964	7.1	2154	7.1	0.994
Patient training	5949	29.4	5586	8.5	363	6.9	0
Patient assessment	2344	11.6	2091	7.5	253	6.3	0.109
Consult patient	1996	9.9	932	8.0	1064	4.4	0
Other	1919	9.5	1035	8.4	884	4.7	0
Consult prescriber in person	795	3.9	696	8.5	99	9.3	0.413
Review laboratory tests	234	1.2	232	3.9	2	13.5	n/a
Consult Medicaid	180	0.9	53	15.4	127	14.6	0.775
Review literature	138	0.7	15	5.7	123	15.4	0
Review profile or chart	125	0.62	58	7.2	67	3.7	0
Consult RPh at another pharmacy	38	0.19	20	9.5	18	11	0.584
Missing (Intervention)	404	2.00	331		73		
Total interventions	20240	100%	15013		5227		

*based on students T test results. P values uncorrected for multiple comparisons.

Interventions were sometimes similar and sometimes different between Group A and Group B pharmacists. The average amount of time for “consult prescriber” was the same

between groups (7.1 minutes). Intervention activities taking more time, on average, in Group A pharmacies included “consult patient” (Group A: 8.0 minutes, Group B: 4.4 minutes), “patient training” (Group A: 8.5 minutes, Group B: 6.9 minutes), and “review profile or chart” (Group A: 7.2 minutes; Group B: 3.7 minutes). One intervention activity, “review literature,” took more time, on average, among Group B pharmacies (Group B: 15.4 minutes; Group A: 5.7 minutes).

8.9 Characteristics of Participating Pharmacies and Pharmacists

As part of the demonstration, two surveys were administered by Abt Associates to participating pharmacists and pharmacies in Groups A, B and C. The primary purpose of the survey was to elicit demographic, setting, practice pattern, and attitudinal characteristics potentially associated with the provision of cognitive services.

8.9.1 Methods. Survey instruments were developed and pre-tested by Abt Associates in collaboration with the Washington Demonstration Team. One, referred to as the “pharmacy questionnaire,” was sent to the pharmacist in charge at each site. The other, referred to as the “pharmacist questionnaire”, was directed to all practicing pharmacists at each site.

All study pharmacies (that is, Groups A, B, and C) were included in the sampling **frame**. Pharmacists were sampled according to a one-stage cluster sampling procedure: all pharmacists employed by a sampled pharmacy were asked to complete the survey. The first contact was made with the pharmacist in charge at each site. Each was informed of the forthcoming survey, asked for his or her cooperation, and asked to identify the number of other pharmacists employed at the site. In a subsequent mailing, the pharmacist in charge received a pharmacy questionnaire as well as questionnaires for each pharmacist. The survey instruments were administered during June and July of 1995. Up to two survey mailings were made to each group, along with follow-up reminders.

The pharmacy owner/manager survey contained questions about the pharmacy (e.g., its location, size, volume measures, DUR computer applications, internal policies on drug therapy interventions). The pharmacist survey contained questions pertaining to training, workload, DUR and cognitive service intervention experience, and attitudes and beliefs about professional practice issues including the provision of patient counseling and cognitive services. Simultaneous use of the two questionnaires offered the opportunity to characterize a pharmacy’s practice and approach to DUR, as well as provide an opportunity to characterize working conditions, attitudes and orientations from the perspective of each practicing pharmacist, regardless of location. Copies of the survey instruments used are included in Appendix N.

The survey responses were linked to cognitive services documentation data for Group A and B pharmacies and pharmacists. Multivariate techniques were employed to examine the factors associated with: 1) provision of any cognitive service, and 2) the volume of cognitive services provided.

8.9.2 Results After the mailings and telephone reminders, a response rate of **73%**, **75%**, and **59%** was achieved for pharmacies in Groups A, B, and C, respectively. We received **from** Abt Associates 203 usable questionnaires from pharmacies: 76 from Group A, 62 **from** Group B, and 65 from Group C. The overall response rate for pharmacists was 59%. We received 162 usable questionnaire responses **from** pharmacists in Group A, 126 from Group B, and 98 from Group C (See Table 40).

Table 40
Pharmacy/Pharmacist Survey Response Rates

	Pharmacist in charge			Pharmacists		
	Sent	Returned	Response Rate	Sent	Returned	Response Rate
Group A	104	76	73%	255	162	64%
Group B	83	62	75%	182	126	69%
Group c	111	65	59%	214	98	46%
All Groups	298	203	68%	651	386	59%

8.9.2. *Pharmacy operating characteristics.* Survey responses relating to operating characteristics were compared initially by group. There were only slight differences among pharmacies in terms of ownership (Table 41). Among respondents, about half the pharmacies in all three groups identified themselves as being independently owned (for comparison, approximately 63% of all pharmacies in the State are independently owned). Chain ownership ranged from a low of approximately 34% in Group A to a high of 48% in Group B. The remainder (amounting to less than 6%) were largely governmental or publicly owned medical clinic pharmacies. A Chi-square test of significance showed no difference in the distribution of pharmacies by type across groups.

Table 41
Pharmacy Ownership

Pharmacy Type	Group A		Group B		Group C	
	Number	Percent	Number	Percent	Number	Percent
Independent	45	59.2	31	50.0	36	55.4
Chain	26	34.2	30	48.4	28	43.1
Other	5	6.6	1	1.6	1	1.5
Total	76	100%	62	100%	65	100%

Chi-square analysis (independent vs. chain) $\chi^2 = 2.145$; $p < .342$. Missing = 0

Pharmacies in the three study groups differed slightly in terms of location (Table 42). Between 29% and 36% of pharmacies in each group were located in urban settings. Pharmacies in rural settings comprised approximately 40% of Groups A and C, but only 31% of Group B. Pharmacies in suburban locations comprised 24% of Group A, 40% of Group B, and 27% of Group C.

Table 42
Pharmacy Location

Location	Group A		Group B		Group C	
	Number	Percent	Number	Percent	Number	Percent
Urban	27	36.0	18	29.0	22	33.8
Rural	30	40.0	19	30.6	26	40.0
Suburban	18	24.0	25	40.3	17	26.2
Total	75	100%	62	100%	65	100%

Chi-square analysis: $\chi^2 = 4.974$; $p < .290$. Missing = 1

Medical centers were the setting for 26% of Group A and 31% of Group B, but only 12% of Group C pharmacies (Table 43). Food markets were the setting for between 21% and 25% of pharmacies across all groups. Finally 32% of pharmacies in Group A were located in neighborhoods or other settings, compared to 21% of Group B and 41% of Group C.

Table 43
Pharmacy Setting

Setting	Group A		Group B		Group C	
	Number	Percent	Number	Percent	Number	Percent
Shopping Mall	16	21.1	13	21.0	14	21.5
Medical Center	20	26.3	19	30.6	8	12.3
Food Market	16	21.1	17	27.4	16	24.6
Neighborhood & Other	24	31.6	13	21.0	27	41.5
Total	76	100%	62	100%	65	100%

Chi-square analysis: $\chi^2 = 10.10$; $p < 0.120$. Missing = 0

The three study groups did not differ substantially in terms of total prescription volume (Table 44). Between 58% and 67% of pharmacies reported total prescription volumes of 2,999 per month or less. Approximately 19% of pharmacies in Group A had prescription volumes of over 5,000 per month, compared to 7% of pharmacies in Group B and 14% of pharmacies in Group C.

Table 44
Monthly Prescription Volume

Prescriptions per month	Group A		Group B		Group C	
	Number	Percent	Number	Percent	Number	Percent
<1500	11	14.9	9	14.8	13	20.0
1500 - 2999	32	43.2	32	52.5	27	41.5
3000 - 4999	17	23.0	16	26.2	16	24.6
5000+	14	18.9	4	6.6	9	13.8
Total	74	100%	61	100%	65	100%

Chi-square analysis: $X^2 = 5.61$; $p < .468$. Missing = 3

The predominant business of most pharmacies was prescription sales (Table 45). Approximately three-fourths of pharmacies in each group indicated that prescription sales comprised 75% or more of total pharmacy or pharmacy department sales. Differences among groups were minor and not statistically significant.

Table 45
Percent Sales from Prescriptions

Prescription Sales to Total Sales	Group A		Group B		Group C	
	Number	Percent	Number	Percent	Number	Percent
< 50%	5	6.9	6	10.2	3	4.7
50-74%	10	13.9	6	10.2	14	21.9
75-89%	19	26.4	14	23.7	19	29.7
>89%	38	52.8	33	55.9	28	43.8
Total	72	100%	59	100%	64	100%

Chi-square analysis: $X^2 = 5.59$; $p < .470$. Missing = 8

The Medicaid program served as an important, but not a dominant source of prescriptions for most pharmacies. For about half the pharmacies in all three groups, Medicaid prescriptions comprised between 10% and 25% of total prescription volume (Table 46). Medicaid prescriptions comprised over 25% of total pharmacy prescription volume for 39% of Group A pharmacies, but only about one-fourth of Group B and C pharmacies.

Table 46
Percent Medicaid Prescriptions

% Medicaid Rx	Group A		Group B		Group C	
	Number	Percent	Number	Percent	Number	Percent
< 10%	10	13.5	13	21.3	16	24.6
10 - 24.9%	35	47.3	33	54.1	32	49.2
25% +	29	39.2	15	24.6	17	26.2
Total	74	100%	61	100%	65	100%

Chi-square analysis: $X^2 = 5.89$; $p < .232$ Missing = 3

Between 31% and 39% of pharmacies in all groups stated they had a separate physical space for patient counseling. (Table 47). The differences between groups were not statistically significant.

Table 47
Separate Space For Counseling Patients

Separate Counseling Space	Group A		Group B		Group C	
	Number	Percent	Number	Percent	Number	Percent
Yes	30	39.5	23	37.1	20	31.3
No	46	60.5	39	62.9	44	68.8
Total	76	100%	62	100%	64	100%

Chi-square analysis: $X^2 = 1.05$; $p < 0.590$. Missing = 1

A relatively high percentage of pharmacies reported providing cognitive services to non-Medicaid patients. Among Group A pharmacies, 61% reported providing these services; among Group B pharmacies the number was 44%, but only 37% for Group C pharmacies (Table 48). These differences were significant at $p < 0.01$.

Table 48
Provide Cognitive Services to Non-Medicaid Patients

Provide Services to non-Medicaid patients?	Group A		Group B		Group C	
	Number	Percent	Number	Percent	Number	Percent
Yes	46	61.3	27	44.3	23	36.5
No	29	38.7	34	55.7	40	63.5
Total	75	100%	61	100%	63	100%

Chi-square analysis: $X^2 = 9.00$; $p < 0.011$. Missing = 4

Between 3% and 12% of pharmacies across groups indicated they received reimbursement for cognitive services from other (i.e., non-Medicaid) payers (Table 49). However, differences were not statistically significant.

Table 49
Receive Reimbursement for Cognitive Services from Non-Medicaid Payers

Receive Reimbursement ?	Group A		Group B		Group C	
	Number	Percent	Number	Percent	Number	Percent
Yes	9	11.8	2	3.2	3	4.6
No	67	88.2	60	96.8	62	95.4
Total	76	100%	62	100%	65	100%

Chi-square analysis: $\chi^2 = 4.72$; $p < .094$. Missing = 0

8.9.2.2 *Factors associated with cognitive service documentation, by participating pharmacies.* We assessed variables associated with cognitive services documentation activities at the pharmacy level for Groups A and B. Data from the pharmacy questionnaire were linked with the cognitive services documentation database to determine the number of cognitive services performed per pharmacy. We determined the number of cognitive services performed during a 6-month window most closely approximating the time of completion of the questionnaire (April through September 1995). To normalize the distribution, this number was restated as the log (base 10) of the number of documented cognitive services.

Table 50 shows the variables considered in multivariate analyses of cognitive services. For each, a rationale is offered for its inclusion in the model.

Table 50
Independent Variables (and Rationale) Used in Predicting Cognitive Service Activities of
Pharmacies

<p><u>Study group (GROUP)</u></p> <p><i>Pharmacies and pharmacists with financial incentive (i.e., Group A) will be more inclined to perform cognitive services.</i></p>
<p><u>Pharmacy type (01 LREG)</u></p> <p><i>The type of pharmacy (e.g., independent, chain) may reflect a different orientation to practice and managerial attitudes toward provision of cognitive services.</i></p>
<p><u>Geographic area (Q2 LREG)</u></p> <p><i>Practice standards are likely to differ by geographic area; pharmacists in certain areas (e.g., urban, suburban, rural) may be more inclined to provide cognitive services than in other areas.</i></p>
<p><u>Setting (Q3(SMNG)P)</u></p> <p><i>Pharmacists in certain settings may be more inclined to provide cognitive services (e.g., medical clinic, shopping mall).</i></p>
<p><u>Private space available for patient counseling (Q4R)</u></p> <p><i>Pharmacies with a private physical space may be more committed to performing cognitive and other patient care-related services.</i></p>
<p><u>Number of FTE pharmacists (Q5R)</u></p> <p><i>Pharmacies employing more pharmacists may practice task specialization or have more fully developed practice standards affecting provision of cognitive services.</i></p>
<p><u>Number of FTE pharmacy technicians (Q6R)</u></p> <p><i>Pharmacies employing more pharmacy technicians free up pharmacist time to perform other tasks such as cognitive and patient care services.</i></p>
<p><u>Hours the prescription department is open (Q7R)</u></p> <p><i>Pharmacies open more hours may have more non-dispensing time available to perform cognitive services.</i></p>
<p><u>% of Total pharmacy sales accounted for by prescriptions (Q8R)</u></p> <p><i>Prescription-oriented pharmacies will be more inclined to engaged in patient care-related activities and cognitive services.</i></p>
<p><u>Annual prescription sales (Q9R)</u></p> <p><i>The workload volume of the prescription department reflects professional orientations either favoring or mitigating performance and documentation of cognitive services.</i></p>

<p><u>Number of prescriptions dispensed in a typical month (Q10R)</u></p> <p><i>An alternate measure of workload volume which reflects professional orientations and which may either encourage or discourage performance and documentation of cognitive services.</i></p>
<p><u>Percent of prescriptions billed to a third party (Q11R)</u></p> <p><i>Pharmacies influenced or controlled to a greater extent by thirdparties will align their professional activities consistent with thirdparty rules, reimbursement incentives and the level of professional fees. This affects the provision of cognitive services.</i></p>
<p><u>Percent of prescriptions dispensed to Medicaid recipients (Q12R)</u></p> <p><i>Pharmacists serving a higher proportionate number of Medicaid enrollees may be more attuned to new rules, procedures, and initiatives, such as the those affecting cognitive services.</i></p>
<p><u>Percent of Medicaid prescriptions provided to nursing homes (Q12AR)</u></p> <p><i>Nursing home patients have more complex drug regimens and potentially more drug-related problems than ambulatory patients. An orientation to meeting the needs of this group of patients may be reflected in a general professional orientation within the pharmacy favoring the provision of cognitive services to other patients.</i></p>
<p><u>How burdensome are cognitive services documentation activities (Q16R)</u></p> <p><i>Pharmacists who perceive the task of documenting cognitive services as burdensome are less likely to perform it.</i></p>
<p><u>Document cognitive services for non-Medicaid patients (Q17 LREG)</u></p> <p><i>Pharmacies who document cognitive services for non-Medicaidpatients are more likely to do so for Medicaid patients.</i></p>
<p><u>Reimbursement for cognitive services for non-Medicaid patients (Q18R)</u></p> <p><i>Pharmacies who routinely receive reimbursement for cognitive services for non-Medicaid patients are more likely to provide and document cognitive services for Medicaidpatients.</i></p>
<p><u>Has the cost of operating Rx department increased due to operating a PDUR svstem? (Q19AR)</u></p> <p><i>An increase in operating costs may reflect the added costs of providing cognitive services in response to DUR alerts.</i></p>
<p><u>Has the cost of operating; the Rx department increased due to providing counseling, to Medicaid recipients? (Q19BR)</u></p> <p><i>Counseling activities are often linked to the provision of cognitive services. Pharmacies with increased operating costs may have been engaged in more cognitive services activities as well.</i></p>
<p><u>What % of Rx business costs went to operating a prospective DUR system? (Q20AR)</u></p> <p><i>Higher operating costs in pharmacies may also reflect an orientation to, and a higher level of activities associated with providing cognitive services in response to DUR alerts.</i></p>

What % of Rx business costs went to providing counseling to Medicaid recipients? (Q20BR)

Counseling activities are often linked to the provision of cognitive services. Pharmacies with higher counseling-related operating costs may have been engaged in more cognitive services activities as well.

How **useful** were CARE Project communications about how to document **cognitive** services? (Q21AR)

*Pharmacies viewing communications about the **CARE project** as **useful** are more likely to participate **by providing** and documenting cognitive services.*

How useful were CARE **Project** communications in addressing **your** problems or concerns? (Q21BR)

*Pharmacies viewing communication about the **CARE project** as useful in addressing their specific problems are more likely to participate **by providing** and documenting cognitive services.*

Would more communication be useful? (Q21CR)

*Pharmacies **perceiving** the **need** for more communications are less likely to have documented cognitive services.*

Adequacy of \$40 monthly participation fee (Q22)

Pharmacies who regard the fee as being adequate are more likely to have documented cognitive services

8.9.2.3 *Provision of cognitive services (pharmacy level analysis).* We first assessed factors associated with provision of any cognitive service by a participating pharmacy. Among Croup A and B pharmacies responding to the survey, (n=138), there were 85 (61.6%) who documented cognitive services during the 6 month time window (92%, or 127 of the responding pharmacies documented one or more cognitive services over the entire period of the study).

We used logistic regression to explore pharmacy variables associated with cognitive services documentation during the 6 month time window. Logistic regression results (Table 5 1) identified two variables significantly associated with whether or not the pharmacy documented any cognitive services for Medicaid recipients during the 6 month window, namely, the perceptions of the pharmacist-in charge about *the usefulness of CARE Project communications* in helping to understand how to document cognitive services (odds ratio = 2.24; confidence interval: 1.15 to 4.35; p< 0.018), and the *number of FTE (full time equivalent) pharmacists employed* (odds ratio = 1.06; confidence interval: 1.01 to 1.10; p< 0.015).

Table 51

Logistic Regression Results:
 Factors Associated with Pharmacy Documentation of Any Cognitive Services
 (During a 6 Month Time Window)

Variable	B	S.E.	Sig*	OR _{adj}	95% CI	
					Lower	Upper
Communication re: how to document (Q21AR)	0.806	0.339	0.018	2.238	1.152	4.351
Number of FTE Pharmacists (Q5R)	0.055	0.022	0.015	1.056	1.011	1.103

*Wald test results, N=135 pharmacies. Missing = 3 pharmacies.

Thus, the number of pharmacists on staff was weakly associated, and the pharmacist-in-charge's positive perceptions about the **usefulness** of communications regarding cognitive services documentation were much more strongly associated with whether or not the pharmacy documented any cognitive services for Medicaid recipients. Using these two variables alone, the equation correctly classified 88.1% of participants (i.e., as having documented one or more cognitive services during the 6 month time window of observation), and 3 1.4% of the non-participants (who documented no cognitive services during the 6 month window), for an overall prediction rate of 66.7%.

Not surprisingly, the two variables entering the model were significantly associated with other variables that did not enter the model (Table 52). For example, the number of FTE pharmacists employed was associated with several other pharmacy size and **volume**-related factors, such as *number of FTE pharmacy technicians employed (r= .462)*, *annual prescription sales (r= .522)*, and *number of prescriptions dispensed in a typical month (r=.348)*. The pharmacist in charge's perceptions about the *usefulness of CARE Project communications regarding the documentation of cognitive services* were highly associated with perceptions about the *usefulness of CARE Project communications in addressing specific problems or concerns (r=.722)*. The high degree of correlation between these variables and several variables not included in the model suggests that they may act as close substitutes or surrogates.

Table 52
Correlations Among Included and Excluded Variables in the Regression Models^{a,b}

Variables entering regression model

Variables not entering regression model	# FTE Pharmacists (Q5R)	Medical Center Location (Q3M)	# Rx per month (Q10P)	Usefulness of CARE – documentation (Q21AR)
# FTE Pharmacists (Q5R)	1.0		0.384	
# FTE Technicians (Q6R)	0.462		0.477	
Annual Rx Sales (Q9R)	0.522		0.719	
# Rx per month (Q10R)	0.384			
Usefulness of CARE: Addressing Concerns (Q21BR)				0.722
Hours Rx dept. open per wk (Q7R)			0.338	
% of total pharmacy sales accounted for by Rx (Q8P)		0.321		
Hours dispensing (Q8)		-0.362		
Grocery Location (Q3GP)		-0.364		
Medical Center Location (Q3M)		1.0		
Shopping Center Location (Q3SP)		-0.398		
Neighborhood Location (Q3NP)		-0.353		

^a Table includes only those correlations at or above $r = 0.30$

^b Variables included in the regression models not having correlations with excluded variables above $r = 0.30$ include study group (GRP_RECD), pharmacy position (Q6R), geographic area: rural (Q2RP), % billed to Medicaid (Q12P), % total pharmacy sales accounted for by Rx (Q8P), and burdensomeness of cognitive services documentation (Q16).

8.9.2.4 *Volume of cognitive services (pharmacy level analysis).* Next, we explored factors related to the *volume* documented of cognitive services for Medicaid recipients over 6 months, using the same set of variables. Ordinary least squares multiple regression results (Table 53) identified three significant variables which together account for approximately 24% of the variance (multiple $r = .516$, adjusted $r^2 = .239$). The three variables are *study group status* (i.e., Croup A or B) (beta = 0.347), and two prescription volume-related factors: *number of prescriptions dispensed in a typical month* (beta = -0.265), and *percent of prescriptions dispensed to Medicaid recipients* (beta = 0.305). These findings indicate that the number of documented cognitive service events for Medicaid recipients is higher in Croup A pharmacies, pharmacies dispensing fewer prescriptions per month, and pharmacies with a higher percent of Medicaid recipients.

Table 53
Factors Associated With the Cognitive Service Documentation Rate by Participating Pharmacies*

Variable	Unstandardized B	Std. Error(B)	Beta	Sig.**
Group Status: Study group	0.541	0.154	0.347	0.001
# Rx dispensed monthly at pharmacy (Q10R)	-0.204	0.076	-0.265	0.008
% Rx billed to Medicaid (Q12R)	0.283	0.090	0.305	0.002

* Dependent variable: log of the cognitive service documentation rate during a 6 month period, N= 84 pharmacies. Missing = 1 pharmacy

**Significance of Beta using Student's t-test.

Again, there were some intercorrelations between variables included and excluded from the model (Table 52). Among the variables intercorrelated at $r=0.30$ or higher, the number of prescriptions dispensed in a typical month was associated with number of FTE pharmacists employed ($r=0.384$), number of FTE pharmacy technicians ($r=0.477$), hours the prescription department is open ($r=0.338$) and annual prescription sales ($r=0.719$). This again suggests that these variables may act as partial substitutes or surrogates for variables included in the model.

8.9.2.5 Practice characteristics of participating pharmacists. Among pharmacists completing the questionnaire, about half in each group were either pharmacy owners or managers (Group A: 51.9%, Group B: 52%, Group C: 45.4%; see Table 54). The differences across groups were not statistically significant. Approximately 30% of responding pharmacists had been in practice in 1970 or before (Table 55). Approximately 20-29% had begun practice during the 1970's or 1980's. Between 11% and 18% (across groups) had begun practice in the 1990's. Again, there were no significant differences in these distributions across groups.

Table 54
Pharmacist Position

Pharmacy Position	Group A		Group B		Group C	
	Number	%	Number	%	Number	%
Staff Pharmacist	83	51.9	65	52.0	44	45.4
Manager/owner	<u>77</u>	<u>48.1</u>	<u>60</u>	<u>48.0</u>	<u>53</u>	44.6
Total	160	100%	125	100%	97	100%

Chi-square analysis: $\chi^2=1.25$ $p<.535$ Missing = 4

Table 55
Experience as a Pharmacist

Year of first practice	Group A		Group B		Group C	
	Number	%	Number	%	Number	%
1970 or before	50	31.1	47	37.6	27	27.8
1971-1980	48	29.8	37	29.6	25	25.8
1981-1990	45	28.0	27	21.6	27	27.8
1991 or after	18	11.2	14	11.2	18	18.6
Total	161	100%	125	100%	97	100%

Chi-square Analysis: $X^2=6.46$ $p<.374$ Missing = 3

Pharmacists were asked whether or not they were able to provide enough counseling to patients receiving dispensed prescriptions (Table 56). Between 56.8% and 63.9% responded “yes.” Differences across groups were not statistically significant.

Pharmacists in Groups A and B were also asked how burdensome the task of documenting cognitive services was (Table 57). Approximately one-fourth felt it was not at all burdensome, slightly over half felt it was “somewhat” burdensome, and less than 20% felt it was very burdensome. These proportions were not significantly different across groups.

Table 56
Self-Reported Adequacy of Patient Counseling

Able to provide enough counseling?	Group A		Group B		Group C	
	Number	%	Number	%	Number	%
Yes	92	56.8	78	62.4	62	63.9
No	70	43.2	47	37.6	35	39.6
Total	162	100%	125	100%	97	100%

Chi-square Analysis: $X^2=1.594$, $p<.451$ Missing = 2

Table 57
Attitudes toward Cognitive Services Documentation

How burdensome?	Group A		Group B	
	Number	%	Number	%
Not at all	45	26.7	32	26.7
Somewhat	86	55.0	66	55.0
Very	31	19.1	22	18.3
Total	162	100%	120	100%

Chi-square Analysis: $X^2=.102$, $p<0.950$ Missing = 6

Pharmacists were asked about their attitudes toward the prospective DUR (PDUR) requirements of the OBRA-90 legislation, specifically, whether PDUR assisted them in communications with patients and prescribers; its effect on the relationships between patients, pharmacists, and prescribers; and its overall value. In general, their attitudes toward the PDUR requirements of OBRA-90 were favorable. When asked whether PDUR assists them in their communications with patients, nearly 66% of all responding pharmacists agreed or strongly agreed (A = 60.5%; B = 67.2%; C = 73.4%). The majority also agreed or strongly agreed that PDUR assists them in their communications with prescribers (A = 54.3%; B = 52.4%; C = 59.6%).

Pharmacists were also asked about the extent to which PDUR interfered with the patient-pharmacist relationship. An overwhelming majority (78.9%) either agreed or strongly agreed the statement that PDUR did not interfere with the pharmacist-patient relationship (A = 80.9%; B = 78.4%; C = 76.3%). To a lesser extent, they also agreed or strongly agreed that PDUR does not interfere with the pharmacist-prescriber relationship (A = 70.4%; B = 61.6%; C = 61.7%). When asked if they agreed that PDUR does not interfere with the patient-physician relationship, an even lower percentage (but still over half) agreed or strongly agreed (A = 61.7%; B = 56.5%; C = 54.3%).

The pharmacists also had generally favorable attitudes about the overall value of performing PDUR. A strong majority of pharmacists agreed or strongly agreed, for example, that reviewing PDUR alerts is a valuable use of pharmacists' time (A = 68.3%; B = 67.7%; C = 74.2%). To an even greater extent, they agreed or strongly agree that PDUR helps avoid serious adverse patient effects (A = 82%; B = 86.2%; C = 81.7%). In addition, they agreed or strongly agreed that PDUR screens usually confirm their professional judgment (A = 75.2%; B = 82.4%; C = 79.8%). They were apparently split, however, when considering the effect of PDUR on the time spent counseling patients. Many agreed or strongly agreed that as a result of PDUR, they spent more time counseling patients (A = 39.5%; B = 41.6%; C = 46.8%), while a similar number disagreed or strongly disagreed, (A = 44.4%; B = 42.4%; C = 35.1%).

Pharmacists were also asked about their attitudes toward the provision of cognitive services. In general, they possessed slightly more favorable attitudes about cognitive services than about the performance of PDUR. When asked the extent to which they agreed that the provision of cognitive services assists them in their communications with patients, for example, a strong majority (76.7%) agreed or strongly agreed (A = 75.3%; B = 75.2%; C = 81.1%). A majority (68.2%) also agreed or strongly agreed that the provision of cognitive services assists them in their communications with prescribers (A = 69.1%; B = 69.4%; C = 65.3%).

Pharmacists were also asked to consider how the provision of cognitive services affects their relationships with patients and prescribers. A strong majority agreed or strongly agreed that the provision of cognitive services does not interfere with the patient-pharmacist relationship (A = 86.4%; B = 86.3%; C = 82.3%). To a somewhat lesser

extent, they also agreed that the provision of cognitive services does not interfere with the pharmacist-prescriber relationship (A = 80.2%; B = 72%; C = 67.7%).

They also believed that the performance of cognitive services, in general, was valuable. Most agreed or strongly agreed that the provision of cognitive services helps avoid serious adverse patient effects (A = 90.7%; B = 85.6%; C = 88.4%). When asked to consider the impact of providing cognitive services on the amount of time spent counseling patients, a majority agreed or strongly agreed that performing cognitive services increased the time spent counseling patients (A = 61.7%; B = 56.8%; C = 67.4%). Most respondents also indicated that the provision of cognitive services is supported by their manager or supervisor (A = 83.3%; B = 77.2%; C = 76.8%).

Pharmacists were also asked a series of questions about their attitudes toward their own impact on patient care. Overall, they held favorable attitudes toward their professional impact on the outcomes of patient care. About three-quarters of the respondents agreed or strongly agreed that in the absence of pharmacists' monitoring patient drug therapy, an unfavorable therapeutic outcome is possible (A = 73.8%; B = 73.4%; C = 72%). Most respondents agreed however, with the statement that "pharmacists' failure to instruct patients in the proper use of medications probably would not lead to patients being harmed" (A = 86.4%; B = 82.3%; C = 84%). Nearly all agreed or strongly agreed that the health care of the patient would suffer without the services of a pharmacist (A = 93.8%; B = 89.5%; C = 91.3%) and that patient care would be unsatisfactory with a pharmacist's service (A = 95%; B = 87.1%; C = 90.4%).

With respect to attitudes about patients who are the recipients of their services, more than half disagreed or strongly disagreed with the statement that "patients are only concerned with getting their medications as quickly as possible" (A = 58%; B = 53.2%; C = 63.4%) or that "patients are only concerned with getting their medications as cheaply as possible" (A = 54.7%; B = 51.6%; C = 53.8%). Most pharmacists agreed or strongly agreed that "patients treat pharmacists courteously" (A = 85.1%; B = 88.7%; C = **88.3%**), "show appreciation for the services provided by pharmacists" (A = 90.7%; B = 86.3%; C = **87.2%**), and "show an appropriate amount of respect, when compared to the respect shown to other health care professionals" (A = 71.4%; B = 74%; C = 75.3%).

Finally, pharmacists were asked about their attitudes toward the CARE project's communication activities in support of the demonstration. Nearly all pharmacists felt the communication was somewhat or very **useful**, both in helping to understand how to document cognitive services and in addressing individual problems and concerns (responses were nearly evenly split between "somewhat" and "very" useful for each **group**).

For purposes of further analyses (described below), responses to questions relating to pharmacist attitudes and beliefs were grouped and combined to form indices. Three indices were formed: an index of pharmacist public service orientation (11 items), an index of pharmacist attitudes toward **OBRA-90** prospective DUR requirements (9 items),

an index of pharmacist attitudes about how the provision of cognitive services affects their dispensing activities (7 items), and an index of pharmacist attitudes about clinical encounters with patients. The public service index was derived **from** earlier work by **Schack** and Hepler (1979). We constructed an index of clinical encounters using several items **from** clinical encounter and job satisfaction subscales developed by Barnett and Kimberlin (1986). Two other indices, one addressing attitudes about how the provision of cognitive services affects their dispensing activities, and the other an index of attitudes toward OBRA-90 prospective DUR requirements, were developed especially for this study. The indices were formed using a similar approach as with the other indices (e.g., use of simple averages of agreement scores for each item).

As was done for pharmacy-level data, cognitive service documentation activity was linked to pharmacist questionnaire responses. Again we determined the number of cognitive services performed during a 6-month window most closely approximating the time of completion of the questionnaire (April through September, 1995) and stated this number as the log (base 10) of the number of documented cognitive services.

The mean number of cognitive services performed over the 6-month period is shown below (Table 58). The mean number of cognitive services documented per responding pharmacist in Group A was, on average, about three times higher than that Group B. However, there was also a considerable amount of variation among pharmacists, as indicated by relatively large standard deviations. Between-group differences were statistically significant at $p < 0.05$.

Table 58
Number of Cognitive Services Performed by Pharmacists Over a Selected 6 Month Period

% Medicaid Rx	Group A	Group B
Mean	22.80	7.42
standard dev.	90.81	32.95
Total pharmacies	162	125

t-test analysis: $t=1.993$ $p < 0.048$ (unequal variances assumption) Missing = 1

To adjust for differences in pharmacy work time and workload volume, we defined the cognitive services performance rate as a rate per thousand prescriptions dispensed. The number of cognitive services performed was divided by the (self-reported) estimate of the number of prescriptions dispensed by each pharmacist in a “typical” workday. Dispensed volume calculations were based on responses to questions regarding the typical number of prescriptions dispensed in an 8 hour shift multiplied by the number of dispensing hours per week.

Following this, we enriched the pharmacist database by linking it to the pharmacy database to add selected variables describing the pharmacy’s setting and operating characteristics. There were 287 usable responses from pharmacists; of these, we focused

on the responses of 107 pharmacists in Group A and 88 in Group B (total = 195) for which a link was established with the cognitive services database.

8.9.2.6 *Factors associated with pharmacist performance of cognitive services.* Table 59 shows the variables considered in multivariate analyses of cognitive services at the pharmacist level. For each a rationale is offered for its inclusion in the model.

Table 59
Independent Variables (and Rationale) Used in Predicting Cognitive Service Activities of Pharmacists

<u>Study group (GROUP)</u>
<i>Pharmacies and pharmacists with financial incentive will be more inclined to perform cognitive services.</i>
<u>Year of first practice as a pharmacist (Q5R CATG)</u>
<i>Fewer years in practice implies more recent training in pharmaceutical care and cognitive services.</i>
<u>Pharmacist position (Q6R2)</u>
<i>Owner-managers may have a stronger sense of professional or financial commitment to providing cognitive services in general, and to the demonstration project in particular.</i>
<u>Number of prescriptions dispensed during typical 8 hour shift (Q8)</u>
<i>Pharmacists dispensing more prescriptions devote less time to provision of cognitive services.</i>
<u>Hours per week spent preparing/dispensing prescriptions (Q9)</u>
<i>Pharmacists with more time directed to dispensing responsibilities may be more inclined to perform cognitive services associated with prescriptions dispensed</i>
<u>How burdensome are cognitive services documentation activities? (Q16)</u>
<i>Pharmacists who perceive the task of documenting cognitive services as burdensome are less likely to perform it.</i>
<u>Provide enough patient counseling (Q10)</u>
<i>Pharmacists who perceive they are able to provide sufficient counseling to patients are more inclined to provide cognitive services.</i>
<u>Pharmacist public service index (PUBINDEX)</u>
<i>Pharmacists who view their professional role more favorably are more inclined to document cognitive services.</i>
<u>Index of pharmacist attitudes about how the provision of cognitive services affects their dispensing activities (CS INDEX')</u>
<i>Pharmacists with more favorable attitudes about the provision of cognitive services are more inclined to document cognitive services.</i>

Index of pharmacist attitudes about clinical encounters with patients (CLININDEX)

Pharmacists who view clinical encounters with patients more favorably are more inclined to perform and document cognitive services.

Index of pharmacist attitudes toward OBRA-90 prospective DUR requirement (DUR INDEX)

Pharmacists who perceive prospective DUR screening requirements of OBRA-90 favorably are more inclined to document cognitive services.

Geographic area (recoded as bivariate variables for multivariate analyses) (Q2P)

*Practice **standards** are likely to differ by geographic area; pharmacists in certain areas (e.g., urban, suburban, rural) may be more inclined to provide cognitive services than in other areas.*

Setting (recoded as bivariate variables for multivariate analyses) (Q3(S,N,M,G)P)

Pharmacists in certain settings may be more inclined to provide cognitive services (e.g., medical clinic, shopping mall).

Number of pharmacist FTEs (Q5P)

*Pharmacies employing more pharmacists may practice task specialization or have more fully developed practice **standards** affecting **provision** of cognitive services.*

Percentage sales from prescriptions (Q8P)

Prescription-oriented pharmacies may be more inclined to provide cognitive services.

Number of prescriptions dispensed in a typical month. (Q10P)

*The workload volume of the prescription department **reflects professional** orientations either favoring or mitigating **performance** and documentation of cognitive services .*

Percent of prescriptions dispensed to Medicaid patients (Q12P)

*Pharmacists serving a higher proportionate number of Medicaid enrollees may be more attuned to new **rules procedures**, and initiatives, such as the those affecting cognitive services.*

Pharmacy has its own DUR policies (Q16P)

Pharmacies focusing on DUR activities and responsibilities are more likely to provide cognitive services.

Document cognitive services for non-Medicaid patients? (Q17P)

*Pharmacies who document cognitive services for **non-Medicaid patients** are more likely to do so for Medicaid patients.*

Reimbursement for cognitive services for non-Medicaid patients? (Q18P)

Pharmacies who routinely receive reimbursement for cognitive services for non-Medicaid patients are more likely to provide and document cognitive services for Medicaid patients.

8.9.2.7 *Provision of cognitive services (pharmacist level analysis).* In a similar manner as for pharmacies, we assessed factors associated with provision of any cognitive service using logistic regression, as well as the volume of cognitive services provided. During the 6 month period under observation, 80 (41%) of respondents reported no cognitive services.

Of the 195 cases potentially available for analysis, 174 were included in the logistic regression analysis (the remainder were rejected from the model because of missing data). The results of the logistic regression identified three variables predictive of whether or not the pharmacist provided any cognitive services during the 6 month period: pharmacist position (odds ratio = 2.16, $p < 0.022$), perceptions of how burdensome was the task of documenting cognitive services activities (odds ratio = 1.77; $p < 0.021$), and percentage of sales from prescriptions (odds ratio = 0.67, $p < 0.029$) (Table 60). Pharmacist **owner-managers**, as compared to staff pharmacists, and pharmacists who perceived cognitive services documentation activities to be less burdensome were more inclined to document cognitive services. Combined, these factors correctly classified 79% of pharmacists who documented one or more cognitive services, but the model was considerably less effective in classifying pharmacists who did not document cognitive services (33%). Overall, the model had a predictive ability of 61% (significant at $p < 0.001$; Chi-square analysis).

Table 60
Logistic Regression Results:
Factors Associated with Pharmacist Documentation of Any Cognitive Services

Variable	B	S.E.	Sig*	OR _{adj}	95% CI for Odds Rai	
					Lower Bound	Upper Bound
Pharmacy Position (Q6R2)	0.769	0.336	0.022	2.160	1.117	4.174
Burdensomeness (Q 16)	0.569	0.248	0.021	1.767	1.088	2.871
% Sales from Rx (Q8P)	-0.394	0.181	0.029	0.667	0.473	0.961

*Wald test results, N=174

It was notable that none of the remaining variables, including study group assignment and year of first practice as a pharmacist, were significantly associated with provision of cognitive services. In fact, none even approached statistical significance in their associations with number of cognitive services performed. Finally, we examined the degree of correlation between variables in the model and those not in the model. None exceeded $r = .30$.

8.9.2.8 *Volume of cognitive services provided by pharmacists.* As a second analysis, we employed ordinary least squares regression to assess pharmacist-related variables predictive of the cognitive services documentation rate among pharmacists who documented at least one cognitive service. Removing pharmacists with zero cognitive service documents during the period and those not included in the regression model

because of missing data reduced the number of cases to 105. The distribution was skewed but became normal **after** a log transformation.

Five variables entered the equation, which together accounted for 32% of the variance (multiple R = **.590**; adjusted R²= **.316**; F = 10.593, significant at **p<0.000**). They included, in descending order (according to standardized beta coefficients): lower monthly prescription volume (beta = **-.370**), control group status: (beta = **-.287**), percent prescriptions billed to Medicaid (beta = **.242**), medical center location (beta = **.284**), and rural location (beta = **.203**) (Table 61).

Table 61
Factors Associated with the Cognitive Services Documentation Rate of Pharmacists*

Variable	Unstandardized B	Std. Error(B)	Beta	Sig*.**
Group Status: Control group	-0.439	0.130	-0.287	0.000
# Rx dispensed monthly at pharmacy	-0.274	0.063	-0.370	0.009
% Rx billed to Medicaid	0.231	0.079	0.242	0.005
Medical center location	0.470	0.138	0.284	0.001
Rural location	0.328	0.132	0.203	0.015

* *Dependent variable: log of the cognitive services documentation rate during a 6 month period. N=105 cases with non-missing data.*

***Significance of Beta using Student's t-test.*

One variable in the equation correlated highly with several excluded variables (Table 52). Medical center location was positively associated with the percent sales from prescriptions in the pharmacy (**r=.321**) and pharmacy locations other than rural (**r=.353** to **r=.398**). It was negatively associated with the number of hours spent preparing and dispensing prescriptions (**r=-.362**), whether or not the pharmacy had its own DUR policies (**r=-.255**). In addition, the percent of prescriptions billed to Medicaid correlated moderately with percent sales **from** prescriptions (**r=.253**).

8.9.2.9 Summary of multivariate analyses results. A comparison of the logistic and ordinary least squares regression results suggest that entirely different variables affect the decision whether or not to document any cognitive services as compared to the level of documentation. The pharmacy and pharmacist variables found to be associated with each outcome measure are shown on Table 62. Based on these results, it would appear that participation (i.e., documentation of *any* cognitive services) is more likely if the pharmacist is an owner or manager, if the documentation of cognitive services is not perceived as burdensome, and if the pharmacy has a low percentage of prescriptions to total sales.

On the other hand, among pharmacies and pharmacists who do document cognitive services, higher rates of documentation were associated with Group A (vs. Group B) status, lower pharmacy prescription volume as a percentage of total pharmacy

sales, but a higher percentage of prescriptions billed to Medicaid. Among pharmacists, two other setting variables: medical center location and rural location, were associated with higher cognitive services documentation rates.

Table 62

Variables Found to be Significantly Associated with Cognitive Services Documentation Activity of Pharmacies and Pharmacists*

Variables	Any Documentation ^a		Documentation Volume ^b	
	Pharmacy ^c	Pharmacist ^d	Pharmacy ^c	Pharmacist ^d
Study Group (GRP_RECD)			+	+
Pharmacy Position: Manager-owner/Staff (Q6R2)	N/A	+	N/A	
#FTE Pharmacists (Q5R)	+			
Location: Medical Center (Q3M)				+
Geographic Area: Rural (Q2RP)				+
# Rx dispensed monthly at pharmacy (Q10-P)			-	-
% of Total Pharmacy Sales accounted for by RX (Q8-P)		-		
% Rx billed to Medicaid (Q12-P)			+	+
Usefulness of CARE Communication in Understanding Documentation (Q21AR)	+			
Burden of cognitive services documentation (Q16)		+		

* During a 6 month window of time within which the questionnaires were administered. + or - denote positive or negative relationship; N/A = not applicable to this survey.

^a Results based on logistic regression analysis.

^b Results based on ordinary least squares multiple regression analysis

^c The dependent variable was the log of the number of cognitive services documented over the 6 month period.

^d The dependent variable was the log of the rate of cognitive services documented over the 6 mo. period.

8.10 Drug Cost Changes Associated with the Provision of Cognitive Services

One objective of the demonstration was to assess the impact of payment for cognitive services on the cost of drug therapy provided to patients. While cognitive services may impact both the cost of drug therapy and medical care utilization costs, we examined only changes in direct drug costs associated with pharmacists' cognitive services interventions. Cost impacts were measured on a per cognitive service basis by comparing the cost of the prescription that would have been dispensed without the intervention to the cost of the prescription actually dispensed. Since cognitive service interventions could **affect** not only the prescription dispensed but also subsequent refills, we identified **all** subsequent prescriptions dispensed for the same patient and drug product for a period of up to one year. From this we developed an estimate of the cumulative impact of each cognitive service intervention on costs.

8.10.1 Methods. Eligible cognitive service records included all services provided (by Groups A and B pharmacies) between February 1, 1994 and May 31, 1995 with a result code indicating some type of drug therapy change. The first cognitive service for each unique patient and drug combination was selected, along with all subsequent prescription refills (i.e., the prescription **stream**). To be considered a refill, the same drug must have been dispensed again within 120 days of the last prescription, and within 365 days of **the first** prescription. The prescription stream included all prescriptions dispensed from February 1, 1994 to August 31, 1995. Information concerning the prescription that would have been dispensed without the intervention (i.e. the original prescription) was obtained from the cognitive services documents submitted by pharmacists. Information concerning the dispensed prescription was obtained by linking prescription claims with information contained in Medicaid claims files. Information concerning the ingredient cost of drugs for both the original and dispensed prescriptions was also obtained using Medicaid records. When the cognitive service resulted in a drug discontinuation or decision not to dispense, there was no prescription stream. The savings was the cost of the original prescription that would have been dispensed.

Several logical edits were used before analyzing the data. The three most common reasons for record exclusion were: (1) variables necessary to calculate savings based on days' supply were missing (**N=1910** records); (2) the average days' supply from the prescription stream did not fall within 100 days of the days' supply on the original prescription, before intervention (**N=213** records)*, (3) a cognitive service record indicating a change in dose or dosage regimen that did not indicate a change in either quantity dispensed, days' supply *or* national drug code (**NDC**) (**N=274** records), cognitive service events relating to drugs that may not have been used daily (e.g. G-CSF, sumatriptan) (**N=172** records), and any cognitive service indicating a change in drug but not showing a change in the NDC code from that originally prescribed (**N=54** records). Several records were excluded for more than one of the above reasons.

*. This was done because Medicaid payment rules stipulate that a 30 days' supply must be dispensed, but up to 100 days are allowed for certain chronic medications. Thus, a record indicating a change in days' supply of greater than 100 days was considered invalid.

We estimated the cost impact of each cognitive service by comparing the cost per day of drug therapy for the prescription as originally written to the cost per day for the prescription that was actually dispensed. First, we estimated the original prescription stream cost by determining what the dispensed prescription stream would have cost if had been dispensed as originally written. To do **this**, we multiplied the total days' supply of the dispensed prescription stream by the cost per day of the original prescription. Total cost savings were then estimated by subtracting Medicaid cost **from** the estimated original prescription stream cost. The following formula illustrates this calculation:

$$\text{Total cost savings} = \text{Original Estimated Cost} - \text{Actual}(- \text{Medicaid Cost})$$

where:

Original Estimated Cost = (Original Cost per Day x Cumulative Days Supply)+
Dispensing Fees.

Original Cost ner Day = (Cost per unit x Original quantity)/Original Days' Supply

Cost ner unit = Cost to Medicaid per dosage unit of medication dispensed, e.g., lower of maximum allowable cost or estimated acquisition cost per tablet (generally determined at 89% of the average wholesale price), capsule, ml., etc. Costs were determined from the NDC number recorded on the cognitive service document for "original" cost. Calculations did not include OBRA-mandated rebates.

Original Quantity = Number of units of drug ordered on the original prescription as recorded on the cognitive service document.

Original Dava' Supply = Number of days' supply ordered on the original prescription as recorded on the cognitive services document.

Cumulative Dava' Supply = Sum of the days' supply on all linked prescriptions dispensed for the same drug and the same patient during the time period of the defined prescription stream, taken from Medicaid claims.

Dispensing Fees: (Total number of prescriptions x dispensing fee for each prescription). The number of prescriptions dispensed over the cumulative days' supply was estimated using the original days' supply. The applicable dispensing fee for each pharmacy was applied.

Actual Medicaid Cost: The sum of all amounts paid by Medicaid for the relevant drug (first prescription and identified refills) dispensed. These costs include pharmacist dispensing and cognitive service fees. For consistent comparisons we assumed cognitive services fees for interventions performed by Group B as well as Group A pharmacies.

Dispensing fees may have an impact on cost savings if a pharmacist's intervention results in a different number of prescriptions (either more or fewer) being dispensed than would have occurred otherwise. For example, a change from a short- to a long-acting dosage form without a commensurate change in quantity dispensed would increase the days' supply provided and reduce the number of prescriptions dispensed.

In examining costs associated with drug therapy **changes** we assumed that compliance was not significantly affected (either increased **or** decreased) by a therapeutic change. Thus, we assumed that the actual dispensed days' supply (including refills) was the same as it would have been had the original prescription not been changed.

For cognitive services resulting in added drug therapy, we accrued the cost of the added drug therapy over time in the same manner, assuming conservatively that drug therapy would not have been added without the intervention. For discontinued therapy and "do not dispense" decisions, we again conservatively assumed a one time cost savings associated with the prescription **not** dispensed. We did not include in our calculations of savings any refills of the (original) drug that might have occurred over time in the absence of the intervention.

Use of a cost per day formula requires days' supply information to be available and accurate. After matching cognitive service documents with prescription documentation, we were able to either identify, or assign a days' supply for all but one of the cognitive service documents in the sample. We explored the distribution of days' supply information from the identified stream of dispensed prescriptions and from the cognitive service document. Table 63 shows that for both prescriptions and cognitive service documents, the modal days' supply was 30. This is consistent with general rules of payment for the Medicaid program, which call for a 30 day dispensed supply limit on most medications.

Table 63
 Characteristics of Days' Supply Information from Cognitive Services
 Documentation Form and from Matched Dispensed Prescriptions

Days' supply	Group A				Group B			
	CS Document*		Dispensed Rx		CS Document*		Dispensed Rx	
	N	%	N	%	N	%	N	%
1-29	601	69.7	1336	52.2	433	66.6	1080	51.2
30	164	19	984	38.5	164	25.2	835	39.6
31-59	44	5.1	115	4.5	21	3.2	118	5.6
60	20	2.3	39	1.5	9	1.4	9	0.4
61-89	6	0.7	8	0.3	2	0.3	9	0.4
90	1	0.1	11	0.4	1	0.2	7	0.3
91-99	0	0	2	0.1	0	0	0	0
100	22	2.6	53	2.1	20	3.1	38	1.8
101 +	4	0.5	4	0.2	0	0	1	0.0
subtotal any d.s.	862	100	2552	99.8	650	100	2097	99.4
Missing***	1	0	5	0.2	0	0	13	0.6
Total	863	100	2557	100	650	100	2110	100

* involving changes in drug, dosage, dose form, or duration.

**includes zero values.

8.10.2 Results We initially determined cost savings impact associated with specific types of changes in drug therapy (change to drug of choice; substitution generic; substitution therapeutic; change dose; change regimen/duration of use). Of the 3609 cognitive records initially identified indicating one of these changes, 1,513 (41.9%) were available for analysis after all edits had been applied. Another 1595 eligible cognitive service document resulting in other drug therapy changes were identified, including “add drug” (Rx or OTC); “do not dispense”; and “discontinue drug”, of which 489 were included (30.7%). Overall, of the records not included, 64% were from Group A, of the 2002 records that were included in the sample, 58% were from Group A. In total, of 5,204 records, 2002 (38.5%) were included in the cost analysis.

8.10.3 Differentiation by therapeutic class. We next examined records to determine the therapeutic classes that occurred most frequently, and the pattern of refills. Table 64 shows that the most frequent therapeutic classes involved in drug changes were, respectively, anti-infectives, respiratory agents, analgesics, and topical products. Further, as might have been expected, these prescriptions were not frequently refilled. For example, only 16.6% of anti-infectives, 26.7% of respiratory prescriptions, and 17.6% of topical products involved in drug therapy changes were refilled after the initial prescription. On the other hand, 74.5% of cardiovascular agents, 62.2% of CNS agents, 48.6% of gastrointestinal agents and 41.4% of analgesics were refilled one or more times.

Table 64
Refill Rates after Cognitive Service Interventions Involving Drug Regimen Changes, by Major Therapeutic Class

Drug class	# CS*	% with at least one refill
Anti-infectives	302	16.6
Respiratory agents	288	26.7
Analgesic	227	41.4
Topical products	142	17.6
CNS agents	128	62.2
Gastrointestinal agents	107	48.6
Cardiovascular agents	106	74.5
Endocrine and metabolic agents	72	63.4
Nutritional products	53	54.7
Neuromuscular agents	41	58.5
Genitourinary agents	26	15.4
Hematological agents	16	31.2
Misc. products	5	20.0

* includes changes in drug, dosage, dose form, or duration.

Table 65 compares aggregate downstream savings for up to one year among Group A and Group B pharmacies that were associated with the provision of cognitive services. For comparability purposes we chose to describe cost savings exclusive of rebates but

including both with dispensing and cognitive services fees. In total, there was a net program direct drug cost savings of \$26,129. Of this amount, 51% was contributed by Group A pharmacists' cognitive service interventions, and the remainder by Group B pharmacists. Drug, or drug regimen changes resulted in the largest cost savings in both groups.

Table 65
Drug Cost Savings* Associated with Cognitive Services
Resulting in Drug Therapy Change

Type of drug therapy change	All pharmacies	Group A	Group B
Drug or regimen change**	\$ 26,786	\$ 15,440	\$ 11,346
Add drug	-12,839	-9,974	-2,865
Discontinue drug	3,799	2,473	1,326
Do not dispense	8,383	5,527	2,856
All CS involving change	26,129	13,466	12,663
CS documents examined (N)	2002	1,176	826
Mean cost savings per CS	\$ 13.05	\$ 11.45	\$ 15.33

* Net cost savings were computed before manufacturer drug product rebates, and include dispensing fees and cognitive services fees.

** includes changes in drug, dosage, dose form, or duration

We next examined the cost savings per cognitive service, by type of drug therapy change (Table 66). Overall, the mean cost savings per cognitive service was \$13.05'. Among Group A pharmacists, the mean savings was \$11.45, and among Group B, \$15.33 (assuming a cognitive service fee was paid). These differences were not statistically significant.

Cognitive services resulting in drug or drug regimen change were the most common type, accounting for approximately 76% of the examined cognitive services records overall. Cost savings from discontinued drugs and prescriptions not dispensed were largely offset by costs incurred from added drugs. The mean cost savings per cognitive service resulting in a change in drug therapy was \$17.70 overall. There were no significant differences between groups in these savings. When the cost savings associated with drug or drug regimen changes were determined on a per-prescription basis, the mean savings was \$6.42. Again, the differences between groups was small and not statistically significant.

When the cognitive service resulted in the addition of a drug, the mean drug cost impact, including refills, was an additional \$71.32. When a prescription was discontinued, the mean cost savings was \$36.88, and when a prescription was presented

* This estimate was significantly different from zero based on one sample Student' T test results ($p < 0.002$). We affirmed these results using the Sign Rank Test (a non-parametric test). Similar results were observed ($p < 0.002$).

to the pharmacy but not dispensed, the cost savings was \$40.70. Again, **differences** between Croup A and Croup B were not statistically significant.

Table 66
Mean Cost Savings* Associated With Cognitive Services Resulting in Drug or Drug Regimen Change, Add Drug, Do Not Dispense, or Discontinue Therapy Decisions

Cognitive Service Resulting in:	All pharmacies		Group A		Group B		Diff. (p<)
	N	Mean (St. dev.)	N	Mean (St. dev.)	N	Mean (St. dev.)	
Drug or regimen change*							
Per CS	1513	\$ 17.70 (194.88)	863	\$ 17.89 (133.72)	650	\$ 17.45 (254.41)	0.968
Per Rx involved in CS	4174	\$6.42 (45.78)	2304	\$6.70 (38.67)	1870	\$6.07 (53.26)	0.667
Add Drug							
Per CS	180	\$-71.32 (167.98)	135	\$-73.88 (181.80)	45	\$-63.67 (118.57)	0.667
Discontinue Drug							
Per CS	103	\$ 36.88 (57.97)	72	\$ 34.35 (63.51)	31	\$ 42.75 (42.75)	0.435
Do Not Dispense							
Per CS	206	\$ 40.70 (187.58)	106	\$ 52.14 (258.85)	100	\$ 28.56 (38.82)	0.356
Total	2002	\$13.05 (189.10)	1,176	\$11.45 (155.46)	826	\$ 15.33 (228.71)	0.672

* Net cost *savings* were computed before manufacturer drug product rebates, and include dispensing fees and cognitive services fees.

** Changes include change in drug, dose, dose form, or duration.

*** The average cost *savings per Rx* was determined using a weighted mean. Differences were measured using the Student's *t*-test.

We further explored drug cost savings differences by examining cost or cost savings impact per therapeutic class (Table 67). For this analysis we focused on cognitive services resulting in drug or drug regimen changes. Again, there was considerable variation within as well as across drug categories and study groups. When cost savings per cognitive service event were compared across groups within therapeutic category, only one statistically significant difference was found. For endocrine and metabolic agents, interventions by both Croup A and B pharmacies generated net drug costs, but the amount was significantly higher in Croup B. In general, cost savings per cognitive service were highest, respectively, for CNS agents, cardiovascular agents, neuromuscular agents, and analgesics. Part of the reason why these categories generated the highest savings may be that a higher percent of prescriptions in these categories were refilled at least once (i.e., 40% or more), thereby accruing a multiplier effect on the savings linked with the cognitive service.

Table 67

Mean Cost Savings per Cognitive Service Associated with Cognitive Services Resulting in a Drug or Drug Regimen Change by Major Therapeutic Class of Drug*

	All pharmacies		Group A		Group B		Diff. (p<)
	N	Mean (Std. Dev.)	N	Mean (Std. Dev.)	N	Mean (Std. Dev.)	
Anti-infectives	302	\$ 11.41 (81.56)	169	\$ 12.05 (101.87)	133	\$ 10.60 (44.28)	0.869
Respiratory agents	288	-3.74 (129.98)	167	5.07 (40.45)	120	-15.99 (195.1)	0.246
Analgesics	227	20.59 (98.28)	135	23.20 (97.45)	92	16.76 (99.91)	0.629
Topical products	142	22.54 (135.51)	82	19.47 (127.65)	60	26.75 (146.58)	0.793
CNS agents	128	103.31 (503.93)	66	96.30 (290.81)	62	110.76 (662.18)	0.874
Cardiovascular agents	106	53.36 (239.21)	62	37.75 (146.85)	44	75.35 (329.08)	0.481
Gastrointestinal agents	107	-2.14 (159.13)	63	-14.15 (194.88)	44	15.59 (84.34)	0.281
Endocrine and metabolic agents	72	-53.25 (169.53)	42	-8.03 (134.02)	30	-116.57 (194.59)	0.011
Neuromuscular agents	41	37.41 (137.17)	19	35.15 (68.75)	22	39.37 (178.28)	0.919
Nutritional products	53	4.48 (42.48)	32	6.38 (53.08)	21	1.58 (17.57)	0.639
Genitourinary agents	26	11.98 (83.28)	15	-6.77 (26.53)	11	37.56 (122.91)	0.265

* Changes include change in drug, dose, dose form, or duration. Cost savings are before rebates and include dispensing and cognitive services fees. The mean cost savings per Rx was determined using a weighted mean. Differences were measured using the Student's t-test (unequal variances assumption).

810.5 Overall program costs and drug cost savings. We next examined the total costs associated with provision of cognitive services by applying the mean amounts of drug cost savings per cognitive service with change to the total number of documented cognitive services eligible for payment. Table 68 shows the costs and cost savings associated with cognitive services involving drug therapy changes, and overall. For cognitive services involving drug therapy changes, there was an estimated overall net savings of nearly \$79,000, or \$14.64 per cognitive service resulting in a drug therapy change. Group A contributed more cognitive services with drug therapy changes than did Group B, however the net drug cost savings per cognitive service with change was higher for Group B than for Group A (\$19.74 vs. \$11.45, respectively), in large part because no cognitive service fees were paid to Group B.

Table 68
Overall Cognitive Services Payments and Direct Drug Cost Savings

	All pharmacies	Group A	Group B
Cognitive services (C.S.) with drug therapy change			
C.S. resulting: in drug therapy change*	5379	3311	2068
% of all cognitive services*	32.0%	27.7%	42.7%
Total amount paid for C.S. with change	\$ 14,590	\$ 14,590	n/a
Total direct drug cost savings	\$ 93,319	\$ 52,503	\$40,816
Net savings: (drug cost savings - CS payments)	\$ 78,729	\$ 37,913	\$40,816
Mean net savings per C.S.	\$ 14.64	\$ 11.45	\$ 19.74
All cognitive services			
C.S. eligible for Medicaid payment*	16796	11950	4846
Total paid prescription claims	2,220,771	1,316,391	904,380
Total amount paid for all C.S.	\$ 56,128	\$ 56,128	0
Total direct drug cost savings	\$ 93,319	\$ 52,503	\$ 40,816
Net savings: (drug cost savings - C.S. payments)	\$ 37,191	\$ (3,625)	\$ 40,816
Mean net drug cost savings per C.S. of any type	\$ 2.214	\$ (0.303)	\$ 8.423
Net savings/Rx	\$ 0.017	\$ (0.003)	\$ 0.045

** from submitted cognitive services documents. Net count of documents after applying payment rules.*

Table 68 also shows the costs and benefits of cognitive services across all cognitive services and all Medicaid prescriptions dispensed during the period. In this case, we considered the entire amount of payments for cognitive services spread across all cognitive services, including those that did not result in drug therapy changes. The estimated net drug cost savings to the Medicaid program was thereby reduced to \$37,191. The overall net savings per cognitive service of any type, was \$2.21. Computed on a per-prescription basis, the net impact of the demonstration was a net drug cost savings of \$0.02 (comprised of Group A pharmacies whose contribution was nearly zero, and Group B, who contributed nearly \$0.05 per prescription).

Among Group A pharmacies, the cost of cognitive services was easily recovered when only those resulting in drug therapy changes were considered, but was not quite recovered when costs were spread across all cognitive services (in particular, those that did not result in a drug therapy change), and all prescriptions dispensed.

It must be emphasized that this analysis is limited to consideration of the impact on changes in drug costs, and not on other potential qualitative or economic benefits (e.g., enhanced understanding of drug therapy, increased compliance, changes in the use of medical care services due to the cognitive service).

9.0 Summary and Discussion

9.1 Cognitive Service Documentation Rates

The primary hypothesis for the CARE study was that a financial incentive for the **performance** of cognitive services would result in more such services being documented than would occur in the absence of financial incentive. Results showed that Croup A pharmacies (with financial incentive) consistently reported higher cognitive service intervention rates than did Croup B (no financial incentive) participants. Over the **18-**month course of the demonstration, Croup A pharmacies reported a low of 1.3, and a high of 2.4 cognitive service interventions per 100 prescriptions dispensed. In contrast, Croup B pharmacies' rates ranged from a low of 0.7 to a high of 1.0 cognitive service interventions per 100 prescriptions dispensed.

Published reports of intervention rates range from 0.8 to 4 cognitive services per 100 prescriptions dispensed (see Appendix 0). CARE study pharmacists reported cognitive services activities at an overall rate of 1.17 cognitive services per 100 prescriptions dispensed, which is comparable to that found in prior research. The range (across months) was approximately 0.5 to 2.3 per 100 prescriptions dispensed.

Studies of cognitive service activities, however, differ widely in terms of time periods of observation, geographic locations, practice settings, even operating definitions of a cognitive service. The CARE project differed from prior research in several important ways. First, CARE involved a greater number, and a wider cross section of pharmacies than has typically been involved in prior research. Participating CARE! pharmacies ranged **from** pharmacies in small, independent, rural settings to facilities in large, specialty care, academic medical centers. As the background incidence of drug therapy problems may vary from one setting to another, so too, may the opportunity for pharmacist intervention. Additionally, given the opportunity for intervention, pharmacists might also be expected to differ in their willingness to intervene. Indeed, we found documentation to be highly disproportionate among pharmacies. Overall, the top 10 pharmacies contributed about half, and the top 25 pharmacies contributed about **two-**thirds of all cognitive service documents to the Project.

Second, whereas pharmacists who participated in the **CARE** project were asked to document cognitive services only for Medicaid patients, pharmacists in prior demonstrations were typically asked to document cognitive services for **all** patients. One result of this was that CARE pharmacists needed to remember a special procedure for a subset of patients, which may have inhibited the formation of a cognitive services documentation "routine" and, in turn, contributed to relatively lower documentation rates than those found in some other studies. Some evidence for this was found; pharmacies in settings with a high proportion of Medicaid patients tended to have higher rates of cognitive services documentation than did pharmacies with a smaller pool of Medicaid patients. During this demonstration, another mitigating factor was the initiation of Washington State Medicaid program rules that added to the pharmacist's **dispensing-**

related documentation burden (e.g., supplemental rebate program, patient copay requirement). These additional requirements were not well-received by pharmacists, and may have served to deter documentation during the early demonstration months.

The third major difference between the CARE project and prior research efforts was the relatively longer time period of observation maintained in the **CARE** project. One might expect documentation rates to increase over time as pharmacists become more familiar with the documentation procedures and intervention protocol; indeed, a slight rise in the overall cognitive services rate was observed over time. This finding is not unprecedented. A similar pattern was reported in a study of cognitive services in a closed panel practice setting some 15 years earlier (Christensen et al. 1981). This suggests that the documentation of cognitive services activity--which at first may be perceived as an additional burden--may over time become integrated into the routine of pharmacy practice.

Fourth, in contrast to several prior studies, the CARE project did not include “prescription order clarification” among the identified problem types that would warrant a cognitive service intervention. ‘Prescription order clarification was, in fact, expressly *excluded* from the definition of a cognitive service, since the CARE project concerned itself with problems related directly to a patient’s drug therapy as distinct from routine dispensing activities. The net impact of this difference would be to lower the observed rate of cognitive service interventions for **CARE** pharmacies when compared to the rates found in other studies.

Finally, most other reported studies did not incorporate an experimental design for examining the impact of any specific type of intervention (e.g., a payment incentive) on the performance of cognitive services. **CARE** project participants, however, were randomized into two groups, one receiving payment for documenting cognitive services, and one documenting cognitive services but receiving no payment.

9.2 Characteristics of Reported Cognitive Service Interventions

About half (48.4%) of all documented cognitive services problems overall were for patient-related problems, while 32.6% were for drug-related problems, 17.6% for prescription-related problems, and 1.4% for non-drug related problems. These findings are noteworthy in two respects. First, they appear to contrast with the general notion that pharmacists’ activities are focused on identifying and resolving prescription- and drug regimen-related problems to the exclusion of other problems’. Second, most on-line prospective DUR systems focus on problem identification based on a review of the prescription (e.g., high dose), or drug regimen (e.g., therapeutic duplication, drug-drug interaction), but are less well equipped to identify patient-related and non-drug related problems (e.g., drug-taking compliance). Clearly, as many as half of all problems

¹ Many early private sector cognitive service payment programs have limited payment to responses to drug therapy alert messages resulting in drug therapy changes. Further, several descriptive reports of cognitive service activities by pharmacists have shown that a high proportion of interventions are directed toward prescription clarification, detecting prescribing errors, or reporting drug-drug interactions (see Appendix N).

documented by pharmacists in this demonstration were ones that, **left** to a computerized DUR system, would likely have gone unidentified.

Cognitive service interventions resulted in a prescription being dispensed as written about half the time, and in a drug therapy change about 28% of the time. We found no differences between groups in the rates (per 1 00/Rx dispensed) with which problems resulting in a drug therapy change were reported. Neither did we **find** evidence that pharmacists filed an inordinate number of cognitive service documents for generic or therapeutic substitutions, or that they acted independently in making such substitutions. Pharmacists reported making generic and therapeutic substitutions (as the specific of result of a cognitive service intervention) **only** 2.4% of the time and, **when** a substitution was made, pharmacists indicated making contact with the prescriber in 90% of the cases.

Compared with other patients, those receiving more cognitive services for **patient-**based problems (i.e. case managed patients), tended to be older (averaging over 50 years of age), use a greater number of prescriptions, and receive care **from** three or more prescribers. Further, patients receiving cognitive services for drug over-utilization tended to have more prescription claims from more prescribers than did patients receiving cognitive services for any other reason.

9.3 Cognitive Services for Selected Drugs

We examined the **frequency** with which cognitive services were performed for ten specific drug categories. Included were drug categories for which explicit DUR screening criteria had been developed under HCFA sponsorship, as well as two other categories of drugs (selected because appropriate drug usage in these categories is generally considered to be essential to health maintenance). The drug categories investigated were: ACE inhibitors, antidepressants, antipsychotics, benzodiazepines, calcium channel blockers, digoxin, H2RAs, NSAIDs, anticonvulsants, and anticoagulants. Pharmacists' cognitive service interventions were examined **from** two perspectives: 1) the **frequency** of cognitive services performed for drugs in each category, and 2) the types of cognitive services performed.

9.3.1 Frequency of Cognitive Services Performed Cognitive services interventions were expressed as a rate per 100 prescriptions dispensed within a drug category. In general, pharmacists **performed** cognitive services for these drug categories at approximately the same rate as observed for all drugs. Across all pharmacies, the intervention rate exceeded five per 100 prescriptions dispensed for only one category (anticoagulants). For all target drug **categories** except benzodiazepines, Group A pharmacies documented interventions for the target drug categories significantly more often than did pharmacies in Group B. The largest differences in documentation rates between Groups A and B occurred for anticoagulants, antipsychotics, anticonvulsants, calcium channel blockers, digoxin and ACE inhibitors.

When drug-specific problem intervention trends were examined over study months, intervention rates for Group B pharmacists remained relatively constant for most drugs, while the rates for Group A pharmacists **often** increased **after** about the 12th study

month. When this occurred, the Croup A rates remained elevated for 2 to 4 months before receding to slightly above prior levels. This general pattern was exhibited for anticonvulsants, **NSAIDs**, **H2RAs**, antipsychotics, and antidepressants. There was no apparent explanation for why intervention rates would have increased for these categories of drugs in Croup A pharmacies.

9.3.2 Types of Cognitive Services Performed. We also examined the types of drug therapy problems interventions, and results by drug category. Again, pharmacists did not appear to selectively focus on problems that might have been identified for them by common **computer-generated** OP-DUR screens. Instead, “case managed patient” was the most common reason for intervention identified across drug categories, usually followed by “drug: complex administration.” This pattern held for both Croups A and B. The most common interventions across drug categories usually were “consult prescriber” and “patient training;” however, there were some group-, and drug category-specific differences in the **frequency** with which interventions were performed,

In general, the most common results of interventions for drugs in the target categories were “dispense as written” and “counsel patient,” although there were again some group differences. Among Croup B pharmacies, interventions resulting in drug therapy change were relatively more frequent for antidepressants, **H2RAs** and “all other drugs,” while the opposite was true for anticoagulants. While the proportionate number of interventions was sometimes higher among Croup B pharmacies, the absolute number of interventions resulting in drug therapy change for these drug categories was higher in Croup A because pharmacists performed more cognitive services. These findings indicate that, for these drug categories, patient-centered problems tended to be the primary focus of concern.

9.4 Characteristics of Participating Pharmacies and Pharmacists

In carrying out this demonstration project, we were particularly interested in understanding the pharmacy- and pharmacist-related factors (in addition to the financial incentive) that may have acted as incentives or barriers to the provision of cognitive services. We used multivariate regression techniques to examine factors associated with (1) the provision of any cognitive services and (2) the volume of cognitive services provided at both the pharmacy and pharmacist level.

At the pharmacy level, factors examined centered around the practice setting characteristics of the pharmacy including its workload volume, practice **orientations**, costs of providing cognitive services, and the value of communication received **from** the CARE project. Only two factors were found to be associated with the provision of any cognitive services by pharmacies. Documentation of one or more cognitive services was more likely (1) if the pharmacy had a relatively high number of FTE pharmacists employed, and (2) if the pharmacy owner-manager perceived the CARE project communications to have been informative in terms of how to document cognitive services. This suggests that before cognitive services can be provided in pharmacies, the staff must be sufficient in number to allow time for pharmacists to perform and document the necessary interventions. In addition, a policy within the pharmacy that outlines how interventions are to be documented must be clearly understood by pharmacists if the documentation of any cognitive services is to be performed.

With respect to the volume of cognitive services performed at the pharmacy level, three variables were found to be important. Higher documentation volumes were associated with Group A (vs. Group B) status, lower monthly pharmacy prescription volume, and a higher percentage of prescriptions billed to Medicaid. Thus, once the decision has been made to provide cognitive services at the pharmacy level, the financial incentive appears to increase the number of cognitive services performed and documented. The potential for financial gain could also account for the finding that pharmacies with a higher percentage of prescriptions billed to Medicaid also tended to have higher rates of cognitive service documentation. These findings support the view that reimbursement will increase the number of cognitive services performed in pharmacies. However, the rate of cognitive service documentation appears to be limited by the overall monthly prescription volume of the pharmacy.

At the pharmacist level the factors examined included: pharmacist characteristics, such as demographic information and workload volume; attitudes regarding their professional role, the prospective DUR requirements of OBRA-90, the effect of providing cognitive services on dispensing activities, the clinical encounters with patients (a **subscale** measure of job satisfaction), and the burden of documenting cognitive services. Because we believe that the environment in which pharmacists practice may affect their rate of cognitive service performance and documentation, several pharmacy-level factors were included in the analysis. Such factors included pharmacy setting, geographic location, prescription volume indicators, and pharmacy DUR and documentation policies.

Three factors were associated with whether or not individual pharmacists were more likely to document any cognitive services during the six-month time period. Pharmacists who were more likely to document one or more cognitive services were owners/managers rather than **staff** pharmacists, a finding that **confirms** a similar finding by Sisson and Israel (1996). Pharmacists who documented cognitive services also perceived the process of documentation to be less burdensome than did pharmacists who documented no cognitive services. In addition to these pharmacist-related variables, one pharmacy-related factor was found to be important. Pharmacists who documented at least one cognitive service were more likely to work in pharmacies with a lower total percentage of pharmacy sales accounted for by prescriptions.

Among those pharmacists who documented at least one cognitive service, the factors associated with higher rates of documentation paralleled those at the pharmacy level. Higher rates were seen among pharmacists who practiced in pharmacies that received reimbursement (Group A), those with a higher percentage of prescriptions billed to Medicaid, and those with lower monthly prescription volumes. In addition, documentation rates were higher among pharmacists working in medical center settings, which may indicate a clinical orientation, and rural locations. Sisson and Israel (1996) also found a higher incidence of pharmaceutical care activities among pharmacists practicing in rural settings. Perhaps in these locations the relatively smaller populations lead to closer relationships between pharmacists, patients and prescribers which, in turn, serve to encourage and support pharmacists' performance of cognitive services.

Surprisingly, none of the professional attitude and orientation indices were found to be associated with the provision of cognitive services, nor were they correlated to any

substantial degree with variables that were found to be associated with cognitive service documentation volume. Other findings **from** the analysis may help in understanding why this is so. First, pharmacists' attitudes toward the provision of cognitive service activities, their professional role, and their encounters with patients were all found to be favorable. Second, the factors that predicted whether cognitive services were documented at all, as **well** as the volume of documentation (at both the pharmacy and the pharmacist level) were all pharmacy-related factors, with the exception of pharmacists' attitudes about the burden of documentation and the pharmacists' position. These two findings suggest that despite pharmacists' favorable attitudes and orientation, what determines whether and to what extent cognitive services will be performed is the practice environment itself. Efforts to increase cognitive service performance and documentation, therefore, should be directed at those pharmacy-related factors that negatively **influence** cognitive service activities.

The overall findings of these analyses have several implications for those interested in increasing cognitive service intervention rates among pharmacists. First, an explicit and well-defined documentation policy must be established so that pharmacists have a clear understanding of how their interventions are to be reported. The policy should address pharmacists' concerns regarding the burden of documentation. Second, a sufficient number of pharmacists per pharmacy is required to decrease workload volume, thereby allowing pharmacists to perform and document cognitive service activities. This also may result in a greater opportunities for pharmacists to develop supportive relationships with patients and prescribers, which would also serve to increase intervention rates as well as professional reward among pharmacists. Third, reimbursement for cognitive service activities plays a central role in supporting pharmacists' performance of these interventions, and encourages employers to staff pharmacies in a way that acknowledges the time required to perform pharmaceutical care.

9.5 Cognitive Service Intervention Times

Documentation submitted by CAPE project pharmacists showed that cognitive services took, on average, 7.5 minutes each. This finding is consistent with those reported in the few other studies that have reported cognitive service intervention times. For example, Christensen et al. (1981) conducted a time-motion study of cognitive services times, and reported times averaging between 6 and 7.8 minutes, depending on problem type. **Fincham** et al. (1994) reported that the vast majority of pharmacist interventions each lasted less than 5 minutes.

In the CAPE demonstration, Group A pharmacists reported spending, on average, 1.4 minutes longer per cognitive service (averaging 7.9 minutes) than did Group B pharmacists (averaging 6.5 minutes). Part of this variation may be explained by differences in the distribution of problem types reported by pharmacists in each group. For example, "case managed patient" problems (taking an average of 9.7 minutes each) were reported nearly twice as frequently in Group A as in Group B.

It is also possible that Group A pharmacies devoted more time to primary interventions, or that they tended to perform multiple interventions because of the added

financial incentive (our analysis covers only the primary recorded intervention). If the financial incentive was a motivating factor, it did not appear to be a predominant one. Though the cutoff for the higher \$6 payment was an intervention lasting “more than 6 minutes,” both Group A and Group B pharmacists reported that at least 60% of their interventions lasted 6 minutes or less.

9.6 Drug Cost Savings Associated with the Provision of Cognitive Services

One of the objectives of this demonstration was to examine the impact of cognitive services on the cost of drug therapy. We chose to examine the direct drug cost impact by comparing the actual cost of drug therapy to the cost of drug therapy that would have occurred in the absence of the cognitive service intervention. Our analysis included cognitive services that resulted in a drug or drug regimen change or added a drug therapy, as well as those resulting in a decision to discontinue drug therapy or not dispense a prescribed drug. We examined cost impact not only at the time of the cognitive service, but also for subsequent prescription refills up to a period of one year. Cost difference calculations are inclusive of dispensing and cognitive service fees and reflect drug cost savings before rebates.

Our calculations showed an average downstream drug cost savings of \$14.64 per cognitive service associated with any type of drug therapy change. Had Group B also been compensated for these cognitive services, the estimated net drug cost savings per cognitive would have been \$13.05. Considering only these cognitive services, there was an estimated savings in drug costs to the Medicaid program of \$26,786 over 2,002 cognitive service events examined in depth.

Cost savings differed by type of drug therapy change and, as would be expected, there was considerable variation in estimated savings. Cognitive services resulting in a drug or drug regimen change produced mean savings of \$17.70 (standard deviation **\$194.88**), and was nearly identical between groups. Per cognitive service, discontinuing a drug resulted in a mean \$36.88 (standard deviation, \$57.97) savings, while the mean savings of a decision not to dispense a prescribed drug were \$40.70 (standard deviation \$187.58). We did not attempt to accrue savings over time for drug discontinuations based on prior refill history or decisions not to dispense a prescription. Decisions to add drug therapy created costs (offsetting savings) that averaged \$71.32 (standard deviation \$167.98) per cognitive service; however there were relatively few of these events.

This analyses show that, at least for cognitive services involving changes in drug therapy, cost savings were, on average, more than twice the highest fee paid to pharmacists for performing the service. Further, once a cognitive service was performed involving some type of drug change, we found no difference between groups in terms of drug cost impact if both were to have received a cognitive services fee.

We also estimated the net drug cost impact on the cognitive service program as a whole. The estimated net drug cost savings to the Medicaid program considering only cognitive services associated with drug therapy change was over \$78,000. Across all cognitive services, the net savings was reduced to approximately \$37,000 (\$2.21 per

cognitive service), because all payments for cognitive services (including those not resulting in drug therapy changes) were subtracted from drug cost savings. Computed on a per-prescription basis, the overall net impact of the demonstration was a savings of \$0.02.

Among Croup A pharmacies, the fees paid to pharmacists for cognitive services were easily recovered when only cognitive services resulting in drug therapy changes were considered, but were not quite recovered when costs were spread across all cognitive services (in particular, those that did not result in a drug therapy change), and all prescriptions dispensed. In comparison to Croup B, Croup A produced more cognitive services, but a lower percent of them resulted in drug therapy changes. Although Croup B contributed more net drug cost savings than Croup A it must be remembered that Croup B's cost savings occurred largely because no payments for cognitive services were made.

Several caveats are important when interpreting these findings. First, cost savings were estimated only for the subset of cognitive services that could clearly be linked to a dispensed prescription and the subsequent dispensing of the same drug product to the same person.

Second, cognitive services costs reflect the cost to Medicaid of each service, which may or may not reflect the actual cost to the pharmacists of providing the service. We made no attempt to measure pharmacist cost of providing the cognitive service other than to note reported times per intervention.

Third, we estimated downstream cost savings by examining the actual dispensing records of all prescriptions linked to each cognitive services event, but we truncated linked prescriptions at 365 days. While most prescriptions had substantially shorter elapsed days, total downstream savings are underestimated for those cases where drug therapy extended longer. We selected one year as a convenient way to characterize accrued savings.

Fourth, we assumed the original prescription would have been dispensed for the same days' supply period as was the dispensed prescription. It is possible that the problem might have been detected at a later point by some other health professional, thereby truncating the accrued savings.

Fifth, it may be argued that for discontinued prescriptions the intervention, in all probability, terminated a pattern of refills that would have otherwise continued at some cost. It is possible to predict this cost based on refill history prior to the cognitive services event. Had we opted to develop these estimates, it would have magnified our cost savings estimates.

Sixth, we did not consider the drug cost impact of other types of cognitive services that did not result in a drug therapy change. These include, for example, medication compliance enhancement activities that may have been reflected in changed drug usage patterns over time.

Finally, not included in this analysis are other important medical care costs related to the cognitive services event that a patient may have incurred, or may have been avoided. Analysis of related medical care costs requires a different and inevitably more

complex analysis that extends beyond the scope of this report. Follow-up analyses of the impact of cognitive services on these costs are underway and will be reported separately.

9.7 Implementation Issues

Implementation of a documentation and reimbursement system for a new professional service requires reorientation of practice expectations and responsibilities, as well as training. Our pharmacist training approach was multi-faceted, involving descriptive materials and learning aids, a videotape, group sessions, a newsletter, and a telephone help line. It appeared that all of these materials were **helpful** and probably necessary. In general, training sessions focused on the “how-to’s” of documentation, rather than specific training on how to conduct cognitive services or pharmaceutical care. The use of community pharmacists as area coordinators, or agents to facilitate dissemination of materials and to answer questions was not successful in this demonstration. After finding area coordinators’ performance to be inconsistent, we opted to handle dissemination **from** a central source, namely, the CARE project office.

The documentation of cognitive services was new to most of the pharmacists participating in this study. However, we noted that the training effort for the second, and particularly the third waves of enrolled pharmacists were less time-intensive than the first. Two influences--the increased general awareness of cognitive services, and the demonstration team’s growing experience with the training process--may have acted in concert to produce this result. Thus, we speculate that the training and orientation effort took more time than would be the case if the demonstration were to be repeated today. As other public or private sector cognitive services programs emerge, we imagine that they will become progressively easier to implement.

The coding scheme, developed specifically for demonstration, worked well in this demonstration. Because this scheme develops cognitive service billings in the format of a prescription claim, it can be adapted to any prescription drug claims processing system. From a claims processor’s (i.e., Medicaid) perspective, the only changes that needed to be made were the addition of cognitive service codes (and descriptions), and a payment algorithm (based on minutes of pharmacist time) to the drug database. Further, the coding system had the attribute of being relatively easy to understand and use by pharmacists. Although the CARE project was well-served, the coding system used in this demonstration should be evaluated relative to other emerging, nationally recognized coding schemes, such as the NCPDP Professional Services Codes (**Rupp, 1995**), before being advocated for general use.

The task of documenting cognitive services for this demonstration added an additional burden on pharmacists that may not have existed in a “real world” payment system. All participating pharmacists were asked to document cognitive services so that the **CARE** project could be evaluated. This meant that Group A pharmacists were required to document cognitive services twice, once in this manner and again in the form

of a billing document to Medicaid. The documentation form we used was brief and straightforward but did request more detailed information regarding the cognitive service (e.g., original prescription information) than did the billing document. We developed two versions of this documentation form, one a paper form, and the other a stand-alone computer program. The paper forms were more successful for us because of some unique (software) problems we encountered when pharmacists downloaded cognitive services data **from** the computer program.

A more desirable approach would have been for the documentation of cognitive services to have been **fully** automated and integrated into the pharmacy prescription processing system software. At the time of the demonstration, there were few, if any systems of this type available, and none in common use. Since then, we note the continuing development of this type of software, and we expect that the need for a separate documentation system, even for research or evaluation purposes may diminish over time.

9.8 Discussion

The major hypothesis of this demonstration was that a financial incentive would be associated with a higher level of documented cognitive services. Our findings support this hypothesis. The financial incentive was associated with significantly higher documentation levels, strongly suggesting that this reimbursement system has an impact on pharmacist documentation behavior.

Findings **from** this study have drug policy implications for Medicaid programs, particularly with respect to delivery of ambulatory pharmacy services by community pharmacies (e.g., independent and chain pharmacies). For years, pharmacists have advocated a professional role that extends beyond mere dispensing of drug products to include optimization of drug therapy and a patient-centered focus. This study supports findings from earlier investigations that pharmacists do identify potential drug therapy problems and intervene to resolve them. The rate of drug therapy problem detection, ranging from 0.5% to 2.3% (across months and study groups), is consistent with rates reported in prior investigations. However the reported rate of problem detection is, in all likelihood, lower than the true problem incidence rate. The literature suggests, for example, that drug regimen problems, and patient-centered problems such as drug taking noncompliance, occur at a much higher rate.

The problem documentation rates, while low as a percentage of all prescriptions dispensed, was more than twice as high among pharmacies provided the incentive. Given that the rates even with the financial incentive are probably low relative to the expected true problem rate, it is possible that a different form of financial incentive (such as one that more directly rewards pharmacists) may have yielded even higher problem intervention rates. In this demonstration, other barriers existed that probably acted to mitigate against higher problem intervention rates.

Our findings identified several pharmacy characteristics associated with the frequency with which cognitive services were performed. For example, the higher the

concentration of patients eligible to receive the service, the more **often** cognitive services will be performed. **If** a practice was located in a medical clinic or rural setting, or in a pharmacy with relatively lower dispensing volumes, higher documentation rates are likely to occur. We speculate that these attributes collectively reflect a greater opportunity, and practice orientation to performing cognitive services. For administrators interested in a selective or staged implementation strategy designed to achieve cognitive service performance in the shortest amount of time, these findings suggest possible pharmacy characteristics that can be used, a priori, to identify those pharmacies and pharmacists likely to perform these services.

We observed that cognitive services intervention rates as a percent of dispensed prescriptions rose over time. Based on our experiences with this demonstration, we speculate that performance of cognitive services represents a fundamental shift in community pharmacists' professional and practice orientation that takes time to accommodate and integrate into everyday practice. The first opportunity (or expectation) to perform and document cognitive services may not be as easy to adjust to as, say, the third or fourth opportunity. Assessment of the level of performance of cognitive services, or their effects, should occur only after an adequate implementation period lasting several months.

Cognitive services were directed more at patient-centered drug-related problems than at prescription or drug regimen-related problems. We found no apparent reason why patient-centered problems predominated, although we note that at the time of the demonstration there was not a state-wide on-line prospective DUR system in place. Had a system been in place, it might have had the effect of selectively encouraging pharmacists to perform interventions associated with computer-generated drug problem alert flags.

Left to their own priorities, pharmacists not only identified more patient-centered problems, but spent more time in resolving them than for other types of problems even though they received no additional reimbursement. Further, they were more likely to provide multiple interventions to these patients over time. Given the nationally recognized problems of patient drug misuse (e.g., noncompliance), these findings suggest that patient related problems should be a priority area for any reimbursement system. Given such a priority, our findings suggest there would be a relatively high response level among pharmacists. Any reimbursement system should also recognize the possible need for longer amounts of intervention time with patients, and multiple interventions. Our two tier compensation system was probably inadequate for this purpose. A multi-tiered system (based on time), or a relative value unit-based system based on time and problem severity, for example, would be more equitable.

A comprehensive assessment of the outcomes of the provision of cognitive services was beyond the scope of the Washington CARE demonstration. We did, however, report on results and proximal measures, e.g., how **often** drug therapy was changed as a result of the intervention, and the drug cost impact of these changes. One tangible and easily measured result of cognitive service interventions is the frequency of drug therapy changes. Our finding of a change rate of approximately 28% is in the range of that reported by other studies. The vast majority of changes occurred after prescriber consultation, indicating that pharmacists were not acting independently, or contrary to

practice regulations, in identifying and resolving drug therapy problems. Further, when drug therapy changes did occur, the drug cost savings averaged about \$13.00. For these cognitive services, we conclude that cognitive services reimbursement is cost-beneficial from the perspective of the Medicaid program. That is, directly measurable drug cost savings more than offset cognitive services payments to pharmacists. Across all cognitive services (including those not resulting in drug therapy change), direct drug cost savings nearly covered the cost of cognitive services for Group A.

It should be noted, however, that this assessment did not include consideration of 1) any administrative costs of managing the program, 2) the impact of cognitive services on the cost of other medical care services used, and 3) the impact on medical care utilization of patient-centered problem interventions that do not result in drug therapy changes. In this program the administrative costs, while not explicitly measured, were quite low. There was a one time cost associated with entering the payable cognitive service codes but it was a simple procedure identical to adding a **NDC** drug code. Cognitive service claims were processed in the same data stream as prescriptions and appeared on the same reconciliation reports to pharmacies and all claims for medical services were processed under a flat rate negotiated with a claims processor. Since cognitive services did not contribute appreciably to the total volume of claims processed, there was no surcharge. Further, based on other published estimates in the literature, we would expect that when the impact of cognitive services on the cost of other medical care services is considered alongside administrative costs, the results would show a net cost savings to the Medicaid Program.

Based on this demonstration, we conclude that a prescription drug-related cognitive services documentation and reimbursement system can be implemented relatively easily from the perspective of a state Medicaid program; that it will be successful in identifying and resolving at least some, but probably not all, drug therapy problems; and that it has the potential for generating cost savings at least equal to program costs.

GLOSSARY OF TERMS

Add OTC drug therapy

A cognitive service result code that involved a pharmacist's recommendation of over-the-counter (OTC) drug therapy for the patient based upon symptoms and problems presented. This cognitive service code is used only for OTC drugs *not* covered as a drug benefit through Medicaid when prescribed by a physician.

Add Rx drug therapy

A cognitive service result code that involved a legend or non-legend drug being prescribed by an authorized prescriber and added to the patient's therapy.

ADR: observed

A cognitive service problem code that involved a pharmacist observing or suspecting that the patient was experiencing an adverse drug reaction (ADR).

ADR: preventable

A cognitive service problem code in which the drug prescribed is known or suspected to cause an adverse drug reaction (ADR) for the patient.

Area coordinator

A designated community pharmacist appointed to serve as a liaison between CARE project staff and community pharmacists for the purposes of disseminating **followup** information about coding and documentation procedures.

Case managed patient

See *patient case managed*.

Change dose

A cognitive service result code that involved a pharmacist's changing a drug dose with prescriber authorization due to an inappropriate or incorrect prescribed dose.

Change dosage regimen

A cognitive service result code that involved a pharmacist's changing a dosage regimen with prescriber authorization due to an inappropriate or incorrect prescribed dosage regimen.

Change to drug of choice

A cognitive service result code in which the drug was changed (from the one ordered on the original prescription) and dispensed by the pharmacist with prescriber authorization.

Cognitive services

Those services provided by a pharmacist to or for a patient that are either judgmental or educational in nature rather than technical or informational. Examples of cognitive services include screening and evaluating drug therapy; monitoring patient compliance with drug therapy; and extended patient training to assure understanding and proper use of drugs.

Consult Medicaid

A cognitive service intervention code in which Medicaid (third party **payor**) was consulted regarding an agreement to provide case management for a patient. This does *not* include patients restricted to a specific pharmacy by Medicaid, nor does it include any contact with Medicaid regarding drugs on the prior authorization list.

Consult patient

A **cognitive** service intervention code in which the patient was interviewed to obtain more information about disease, drugs currently taken, or a problem detected as it related to drug therapy.

Consult prescriber by phone or fax

A cognitive service intervention code in which the pharmacist contacted the prescriber by phone or fax to obtain information, to resolve a drug therapy problem or to make an appointment or referral for a patient.

Consult prescriber in person

A cognitive service intervention code in which the prescriber was contacted in person by the pharmacist to obtain information, to resolve a drug therapy problem or to make an appointment or referral for a patient.

Consult R.Ph. at another pharmacy

A cognitive service intervention code in which a pharmacist, having detected a drug therapy problem, consulted a pharmacist **from** another pharmacy about the patient's drug-related problem.

Counsel patient

A cognitive service result code involving a pharmacist's provision of *extended* patient counseling due to a patient's drug-related problem.

Discontinue drug

A cognitive service result code in which a drug currently taken by the patient is discontinued with prescriber authorization.

Dispense as written

A cognitive service result code in which the drug was dispensed as originally written by the prescriber.

Do not dispense

A cognitive service result code in which the prescribed drug is not dispensed, based upon contact with, and authorization **from** the prescriber.

Drug allergy/intolerance

A cognitive service problem code in which the patient was allergic to the drug prescribed or had an intolerance to the drug that would cause non-compliance with drug therapy.

Drug: complex administration

A cognitive service problem code in which the drug prescribed had complex usage instructions or administration procedures requiring additional patient education for appropriate use.

Drug-disease interaction

A cognitive service problem code in which the drug prescribed may cause an adverse effect on the disease, or the disease may have an ineffective or adverse effect on the drug.

Drug-drug interaction

A cognitive service problem code that involved an interaction between concurrently used drugs that required both communication with prescriber and patient counseling due to the severity of the interaction.

Drug-food interaction

A cognitive service problem code in which the drug prescribed had an adverse interaction with food prescribed for the patient.

Drug-lab test interaction

A cognitive service problem code in which the drug prescribed was known to interact with a home or office lab test.

Drug: other specific problem

A cognitive service problem code that involved any drug problems not previously described and not specifically excluded as noted in the documentation procedure instructions. For example, activities **not** to be documented in this category include missing information on a prescription or forged prescriptions.

Drug-related problems

Includes the following problem codes: *drug: therapeutic duplication; drug-drug interaction; drug-disease interaction; drug: allergy/intolerance; drug-food interaction; drug-lab test interaction; ADR: preventable; ADR: observed; drug: complex administration;* and *drug: other specific problem.*

Drug: therapeutic duplication

A cognitive service problem code that involved a drug prescribed for a patient who was already taking a therapeutically equivalent drug.

Healthy Options Program

A Washington State Medicaid managed care options program initiated during the time of the CARE study. The program enrolled Aid to Families with Dependent Children (AFDC) recipients in any one of several managed health care programs. Health care premiums in this program are paid by DSHS and prescription drug coverage was an optional program benefit.

OBRA-90

A Federal Budget Reconciliation Act that, pertinent to this demonstration, changed the reimbursement rules for pharmaceuticals, imposed new requirements for the delivery of pharmaceutical services (e.g., on-site prospective drug use review and counseling for Medicaid patients), and authorized demonstration projects to study on-line prospective drug use review and payment of pharmacists for cognitive services.

Other (intervention)

A cognitive service intervention code used to identify any other cognitive service interventions that the pharmacist identified as a service. These problems were not eligible for cognitive services reimbursement.

Other non-drug problems

A term used to **identify** non-drug related problems that pharmacists identified as a cognitive service. These problems were not eligible for compensation.

Patient assessment

A cognitive service intervention code in which the pharmacist assessed the patient's health condition, as it related to the patient's drug therapy, through interview and/or reviewing routine vital signs.

Patient case managed

A cognitive service problem code in which a patient (case) is referred to a pharmacy by a physician or the Medical Assistance Administration (Medicaid) for management of the patient's drug therapy through a customized care program developed between the pharmacy and the provider or Medicaid. This does *not* include patients who are *restricted* to a pharmacy by Medicaid, nor is it equivalent to a managed care patient.

Patient communication difficulty

A cognitive service problem code that involved a patient who had difficulty comprehending instructions for taking drug therapy.

Patient: other improper use of drug

A cognitive service problem code that involved the inappropriate use of a drug other than over- or under-utilization.

Patient over-utilization of drug

A cognitive service problem code that involved a patient's over-compliance with drug therapy.

Patient-related problems

An aggregate cognitive service category that included the following problems: *patient over-utilization of drug; patient under-utilization of drug; patient communication difficulty; patient case managed; and patient: other improper use of drug.*

Patient seeking care: no symptoms

A cognitive service problem code that involved a patient's seeking advice about drug therapy and help in maintaining health when the patient has no disease symptoms.

Patient seeking care: with symptoms

A cognitive service problem code that involved a patient's seeking advice and care for specific symptoms related to drug therapy or those for which drug therapy is likely to be needed.

Patient training

A cognitive service intervention code that involved training and education for the patient beyond routine counseling laws.

Patient under-utilization of drug

A cognitive service problem code that involved a patient's under-compliance with drug therapy.

“PP-II-RR”

An abbreviation used to represent the cognitive service code used to code and bill cognitive service documents. The letters refer to three fields, where PP is the two-digit problem code; II is the two-digit intervention code; and RR is the two-digit result code.

Pharmaceutical care

The component of pharmacy practice which entails the direct interaction of the pharmacist with the patient (or prescriber) for the purposes of caring for that patient's drug-related needs.

Prescription-related problems

An aggregate cognitive service category that included the following problems: *suboptimal drug; suboptimal dose; suboptimal dosage regimen: suboptimal dosage form; suboptimal duration of use; and unnecessary drug therapy.*

Referral

A cognitive service result code in which the referral of a patient was made to another health care provider. A referral involves a pharmacist's recommending that the patient contact a provider, obtaining patient agreement, and notifying the provider that the referral has been made. This includes referral to a health care provider for language translation to assure that the patient understands the purpose for and how to appropriately use medications or devices for drug therapy. This does *not* include a verbal referral only, which is considered patient counseling.

Review laboratory tests

A cognitive service intervention code that involved reviewing or monitoring laboratory test results to assess the status of the patient's disease or the level of individual drugs used in the treatment of the patient.

Review literature

A cognitive service intervention code that involved a pharmacist's consulting the literature and/or other drug information sources to evaluate identified drug therapy problems.

Review profile or chart

A cognitive service intervention code that involved the review of the patient's chart or medical profile to obtain information about the patient's disease, current and/or previous drug therapy, allergies, lab values, or any other information pertinent to the drug therapy problem identified.

State Supplemental Rebate Program

A program in which drug manufacturers contractually agreed to offer the Washington State Medicaid program an additional rebate in exchange for unrestricted status for their products in the program.

Suboptimal dosage form

A cognitive service problem code that involved a pharmacist's **recognition** of an inappropriate, incorrect, or less than optimal drug dosage form for the patient; e.g., capsules for infants or colostomy patients.

Suboptimal dosage regimen

A cognitive service problem code that involved a pharmacist's recognition of an inappropriate, incorrect, or less than optimal dosage regimen of the prescribed drug.

Suboptimal dose

A cognitive service problem code that involved a pharmacist's recognition of an inappropriate, incorrect, or less than optimal dose of the drug that was prescribed for the patient's condition.

Suboptimal drug

A cognitive service problem code that involved a pharmacist's recognition of an inappropriate, incorrect, or less than optimal drug that was prescribed for the patient's condition based upon standard drug therapy recommendations and formulary restrictions.

Suboptimal duration of use

A cognitive service problem code in which a drug was prescribed for inappropriate or less than optimal length of time.

Substitution: generic

A cognitive service result code that involved the substitution of a generic drug for a brand name drug with prescriber authorization. A generic substitution is not considered to be a cognitive service if the prescriber has signed on the "substitution permitted" line. **This** result code is to be used only if the prescription is signed "dispense as written."

Substitution: therapeutic

A cognitive service result code that involved the substitution of a therapeutically equivalent drug with prescriber authorization.

Unnecessary drug therapy

A cognitive service problem code in which neither the prescribed drug nor any other drug was indicated based on the patient's medical problem or the medical diagnosis.

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Appendix A: Cognitive Service Documentation Form

SITE ID _____ Date _____ Rx # _____ RPh Initials _____ Total Time (Min.) _____

-ORIGINAL RX INFORMATION-

-DISPENSED RX INFORMATION--

NDC#: —	CITY:	DAYS SUPPLY:	NDC#: —	QTY:	DAYS SUPPLY:
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Problem:

- _ **SUBOPTIMAL** Drug 01
- _ **SUBOPTIMAL** Dose 02
- _ **SUBOPTIMAL** Dosage regimen 03
- ___ **SUBOPTIMAL** Dosage form/route of admin. 04
- _ **SUBOPTIMAL** Duration of use 05
- _ **SUBOPTIMAL:** Unnecessary drug therapy 06
- _ **DRUG:** Therapeutic duplication 11
- _ **DRUG-Drug** interaction 21
- _ **DRUG-Disease** interaction 22
- _ **DRUG-Allergy/intolerance** 23
- _ **DRUG-Food** interaction 24
- _ **DRUG-Lab** test interaction 25
- _ **ADR:** Preventable 26
- _ **ADR:** Observed 27
- _ **DRUG:** Complex administration 26
- _ **DRUG:** Other specific problem 29
- _ **PATIENT** Over-utilization of drug 31
- _ **PATIENT** Under-utilization of drug 32
- _ **PATIENT** Communication difficulty 33
- _ **PATIENT** Case managed 34
- _ **PATIENT:** Other improper use of drug 35
- _ **PATIENT** Seeking care: with symptoms 41
- _ **PATIENT** Seeking care: NO symptoms 42
- _ **OTHER** NON-drug problems **90**

Intervention:

- _ **CONSULT** Prescriber phone/fax 10
- _ **CONSULT** Prescriber in person 11
- _ **CONSULT** RPh at another pharmacy 20
- _ **CONSULT** Patient 30
- _ **PATIENT** Assessment 31
- _ **PATIENT** Training 32
- _ **CONSULT** Medicaid (3rd Party Payor) 40
- _ **REVIEW** Profile or chart 50
- ___ **REVIEW** Laboratory tests 51
- _ **REVIEW** Literature 60
- ___ **OTHER** 60

Result:

- _ **CHANGE** To drug of choice 01
- _ **ADD** Rx drug therapy 02
- _ **SUBSTITUTION:** Generic 03
- _ **SUBSTITUTION:** Therapeutic 04
- _ **ADD** OTC drug therapy 05
- ___ **CHANGE** Dose 11
- _ **CHANGE** Dosage regimen/Duration of use 12
- _ **DISCONTINUE** Drug 21
- _ **DONOT** dispense 22
- _ **COUNSEL** Patient 30
- _ **REFERRAL** 40
- _ **DISPENSE** As Written **90**

Third Party Type: 001 Medicaid
 WASHINGTON Pharmacist CARE Project **Documentation** Form

Morbidity Risk: ___ **Low(1)** - **Moderate(S)** _ **High(3)**
CS Code [NDC] #:

COMMENTS _____

88888 -- _____

Appendix B: Cognitive Service Codes and Payment Rules

CARE Project
Cognitive services Assessment and Reimbursement Effectiveness

COGNITIVE SERVICES PAYMENT RULES*

All drug-related cognitive service interventions are potentially eligible for reimbursement subject to certain rules. Claims for payment must be properly coded with appropriate Cognitive Service codes indicating the specific PROBLEM, INTERVENTION, and RESULT, and the time involved recorded in the Quantity field. The level of payment is determined by the time involved. The following combination of codes are eligible:

Problem:	a n y
Intervention:	any
Result:	Any code signifying a change in drug therapy [01-04,11,12,21,22] except 'Add OTC drug' [05]
Problem:	Patient Overutiliz (31), Underutiliz (32) or Communication Difficulty (33)
Intervention:	any
Result:	Counsel Patient (30)
Time involved:	> 6 minutes
Problem:	Case Managed Patient (34) <i>if referred by DSHS or a physician</i>
Intervention:	any
Result:	'all except Add OTC Drug (05)
Problem:	Complex Drug Admin (28) or Other Drug-Specific Problem (29)
Intervention:	Patient Training (32)
Result:	D.A.W. (90)
Problem:	Communication Difficulty (33)
Intervention:	a n y
Result:	Referral (40) be sure to check the working definition of 'referral'
Problem:	Any, except Pt. Seeking Care (41,42), and Other Non-drug Problem (90)
Intervention:	Consult Prescriber (10,11) be sure to check the working definition of 'consult prescriber'
Result:	any
Problem:	Therapeutic Duplication (11), DDI (21), Drug-Dis. interaction (22), Drug-allergy intol. (23), ADR-prev. (26) ADR-obs. (27) Pat. Overutil. (31), Pat. Underutil. (32)
Intervention:	Consult RPh at another pharmacy (20)
Result:	Counsel patient (30) or Referral (40)
Problem:	any
Intervention:	Consult Patient (30) or Patient Assessment (31)
Result:	Referral (40)

CARE Payable Cognitive Service Codes as of 11/4/94

01 - IO - 01	<u>DRUG /PHNDOC/CHG DRG</u>	03 - IO - 02	<u>REGMN/PHNDOC/ADD DRG</u>
01 - 10 - 02	<u>DRUG /PHNDOC/ADD DRG</u>	03 - 10 - 11	<u>REGMN/PHNDOC/CHGDOSE</u>
01 - 10 - 03	<u>DRUG /PHNDOC/GEN SUB</u>	03 - IO - 12	<u>REGMN/PHNDOC/CHG RGM</u>
01 - 10 - 04	<u>DRUG /PHNDOC/THR SUB</u>	03 - IO - 22	<u>REGMN/PHNDOC/NOT DSP</u>
01 - 10 - 05	<u>DRUG /PHNDOC/ADD OTC</u>	03 - IO - 30	<u>REGMN/PHNDOC/CNSL PT</u>
01 - 10 - 21	<u>DRUG /PHNDOC/DC DRUG</u>	03 - IO - 40	<u>REGMN/PHNDOC/REFER</u>
01 - 10 - 22	<u>DRUG /PHNDOC/NOT DSP</u>	03 - IO - 90	<u>REGMN/PHNDOC/D.A.W.</u>
01 - 10 - 30	<u>DRUG /PHNDOC/CNSL PT</u>	03 - 11 - 02	<u>REGMNNISDOCIADD DRG</u>
01 - 10 - 40	<u>DRUG /PHNDOC/REFER</u>	03 - 11 - 11	<u>REGMNNISDOCICHGDOSE</u>
01 - 10 - 90	<u>DRUG /PHNDOC/D.A.W.</u>	03 - 11 - 12	<u>REGMN/ISDOC/CHG RGM</u>
01 - 11 - 01	<u>DRUG NISDOCICHG DRG</u>	03 - 11 - 22	<u>REGMNNISDOCINOT DSP</u>
01 - 11 - 02	<u>DRUG /ISDOC/ADD DRG</u>	03 - 11 - 30	<u>REGMN/ISDOC/CNSL PT</u>
01 - 11 - 03	<u>DRUG /ISDOC/GEN SUB</u>	03 - 11 - 40	<u>REGMNNISDOCIREFER</u>
01 - 11 - 04	<u>DRUG /ISDOC/THR SUB</u>	03 - 11 - 90	<u>REGMN/ISDOC/D.A.W.</u>
01 - 11 - 05	<u>DRUG NISDOCIADD OTC</u>	03 - 30 - 12	<u>REGMN/CNSPAT/CHG RGM</u>
01 - 11 - 21	<u>DRUG NISDOCIDC DRUG</u>	03 - 30 - 40	<u>REGMN/CNSPAT/REFER</u>
01 - 11 - 22	<u>DRUG /ISDOC/NOT DSP</u>	03 - 31 - 40	<u>REGMN/PT.EVL/REFER</u>
01 - 11 - 30	<u>DRUG NISDOCICNSL PT</u>	03 - 50 - 11	<u>REGMN/REVCHT/CHGDOSE</u>
01 - 11 - 40	<u>DRUG NISDOCIREFER</u>	04 - IO - 01	<u>FORM /PHNDOC/CHG DRG</u>
01 - 11 - 90	<u>DRUG /ISDOC/D.A.W.</u>	04 - 10 - 21	<u>FORM /PHNDOC/DC DRUG</u>
01 - 30 - 01	<u>DRUG /CNSPAT/CHG DRG</u>	04 - IO - 22	<u>FORM /PHNDOC/NOT DSP</u>
01 - 30 - 40	<u>DRUG /CNSPAT/REFER</u>	04 - IO - 30	<u>FORM /PHNDOC/CNSL PT</u>
31 - 31 - 01	<u>DRUG /PT.EVL/CHG DRG</u>	04 - IO - 40	<u>FORM /PHNDOC/REFER</u>
01 - 31 - 40	<u>DRUG /PT.EVL/REFER</u>	04 - IO - 90	<u>FORM /PHNDOC/D.A.W.</u>
01 - 50 - 01	<u>DRUG /REVCHT/CHG DRG</u>	04 - 11 - 01	<u>FORM /ISDOC/CHG DRG</u>
02 - 10 - 01	<u>DOSE /PHNDOC/CHG DRG</u>	04 - 11 - 12	<u>FORM NISDOCICHG RGM</u>
02 - IO - 02	<u>DOSE /PHNDOC/ADD DRG</u>	04 - 11 - 21	<u>FORM /ISDOC/DC DRUG</u>
02 - 10 - 05	<u>DOSE IPHNDOCIADD OTC</u>	04 - 11 - 22	<u>FORM /ISDOC/NOT DSP</u>
02 - IO - 11	<u>DOSE /PHNDOC/CHGDOSE</u>	04 - 11 - 30	<u>FORM NISDOCICNSL PT</u>
02 - IO - 12	<u>DOSE /PHNDOC/CHG RGM</u>	04 - 11 - 40	<u>FORM NISDOCIREFER</u>
02 - 10 - 22	<u>DOSE /PHNDOC/NOT DSP</u>	04 - 11 - 90	<u>FORM /ISDOC/D.A.W.</u>
02 - IO - 30	<u>DOSE /PHNDOC/CNSL PT</u>	04 - 30 - 01	<u>FORM /CNSPAT/CHG DRG</u>
02 - 10 - 40	<u>DOSE /PHNDOC/REFER</u>	04 - 30 - 40	<u>FORM /CNSPAT/REFER</u>
02 - IO - 90	<u>DOSE /PHNDOC/D.A.W.</u>	04 - 31 - 40	<u>FORM /PT.EVL/REFER</u>
02 - 11 - 02	<u>DOSE /ISDOC/ADD DRG</u>	05 - IO - 12	<u>DURA IPHNDOCICHG RGM</u>
02 - 11 - 05	<u>DOSE /ISDOC/ADD OTC</u>	05 - IO - 21	<u>DURA /PHNDOC/DC DRUG</u>
02 - 11 - 11	<u>DOSE NISDOCICHGDOSE</u>	05 - IO - 22	<u>DURA /PHNDOC/NOT DSP</u>
02 - 11 - 22	<u>DOSE NISDOCINOT DSP</u>	05 - IO - 30	<u>DURA /PHNDOC/CNSL PT</u>
02 - 11 - 30	<u>DOSE /ISDOC/CNSL PT</u>	05 - IO - 40	<u>DURA /PHNDOC/REFER</u>
02 - 11 - 40	<u>DOSE NISDOCIREFER</u>	05 - IO - 90	<u>DURA /PHNDOC/D.A.W.</u>
02 - 11 - 90	<u>DOSE /ISDOC/D.A.W.</u>	05 - 11 - 12	<u>DURA NISDOCICHG RGM</u>
02 - 20 - 11	<u>DOSE /OTHRPH/CHGDOSE</u>	05 - 11 - 21	<u>DURA NISDOCIDC DRUG</u>
02 - 30 - 40	<u>DOSE /CNSPAT/REFER</u>	05 - 11 - 22	<u>DURA /ISDOC/NOT DSP</u>
2 - 31 - 40	<u>DOSE /PT.EVL/REFER</u>	05 - 11 - 30	<u>DURA NISDOCICNSL PT</u>
02 - 50 - 01	<u>DOSE /REVCHT/CHG DRG</u>	05 - 11 - 40	<u>DURA NISDOCIREFER</u>

CARE Payable Cognitive Service Codes as of 1 1/4/94

05 - 11 - 90	<u>DURA /VISDOC/D.A.W.</u>	21 - 11 - 11	<u>D-DI NISDOCICHGDOSE</u>
05 - 30 - 40	<u>DURA /CNSTAT/REFER</u>	21 - 11 - 12	<u>D-DI NISDOCICHG RGM</u>
05 - 31 - 40	<u>DURA /PT.EVL/REFER</u>	21 - 11 - 21	<u>D-DI NISDOCIDC DRUG</u>
05 - 80 - 12	<u>DURA /MSCSVC/CHG RGM</u>	21 - 11 - 22	<u>D-DI NISDOCINOT DSP</u>
06 - 10 - 01	<u>UNNEC/PHNDOC/CHG DRG</u>	21 - 11 - 30	<u>D-DI NISDOCICNSL PT</u>
06 - 10 - 21	<u>UNNEC/PHNDOC/DC DRUG</u>	21 - 11 - 40	<u>D-DI NISDOCIREFER</u>
06 - 10 - 22	<u>UNNEC/PHNDOC/NOT DSP</u>	21 - 11 - 90	<u>D-DI /VISDOC/D.A.W.</u>
06 - 10 - 30	<u>UNNEC/PHNDOC/CNSL PT</u>	21 - 20 - 30	<u>D-DI /OTHRPH/CNSL PT</u>
06 - 10 - 40	<u>UNNEC/PHNDOC/REFER</u>	21 - 20 - 40	<u>D-DI /OTHRPH/REFER</u>
06 - 10 - 90	<u>UNNEC/PHNDOC/D.A.W.</u>	21 - 30 - 40	<u>D-DI /CNSTAT/REFER</u>
06 - 11 - 21	<u>UNNECNISDOCIDC DRUG</u>	21 - 31 - 40	<u>D-DI /PT.EVL/REFER</u>
06 - 11 - 22	<u>UNNECNISDOCINOT DSP</u>	22 - 10 - 01	<u>D-DIS/PHNDOC/CHG DRG</u>
06 - 11 - 30	<u>UNNECNISDOCICNSL PT</u>	22 - 10 - 02	<u>D-DIS/PHNDOC/ADD DRG</u>
06 - 11 - 40	<u>UNNECNISDOCIREFER</u>	22 - 10 - 05	<u>D-DIS/PHNDOC/ADD OTC</u>
06 - 11 - 90	<u>UNNEC/VISDOC/D.A.W.</u>	22 - 10 - 11	<u>D-DIS/PHNDOC/CHGDOSE</u>
06 - 30 - 40	<u>UNNEC/CNSTAT/REFER</u>	22 - 10 - 12	<u>D-DIS/PHNDOC/CHG RGM</u>
06 - 31 - 40	<u>UNNEC/PT.EVL/REFER</u>	22 - 10 - 21	<u>D-DIS/PHNDOC/DC DRUG</u>
11 - 10 - 21	<u>THDUP/PHNDOC/DC DRUG</u>	22 - 10 - 22	<u>D-DIS/PHNDOC/NOT DSP</u>
11 - 10 - 22	<u>THDUP/PHNDOC/NOT DSP</u>	22 - 10 - 30	<u>D-DIS/PHNDOC/CNSL PT</u>
11 - 10 - 30	<u>THDUP/PHNDOC/CNSL PT</u>	22 - 10 - 40	<u>D-DIS/PHNDOC/REFER</u>
11 - 10 - 40	<u>THDUP/PHNDOC/REFER</u>	22 - 10 - 90	<u>D-DIS/PHNDOC/D.A.W.</u>
11 - 10 - 90	<u>THDUP/PHNDOC/D.A.W.</u>	22 - 11 - 01	<u>D-DISNISDOCICHG DRG</u>
11 - 11 - 21	<u>THDUPNISDOCIDC DRUG</u>	22 - 11 - 02	<u>D-DISNISDOCIADD DRG</u>
11 - 11 - 22	<u>THDUPNISDOCINOT DSP</u>	22 - 11 - 05	<u>D-DIS/VISDOC/ADD OTC</u>
11 - 11 - 30	<u>THDUP/VISDOC/CNSL PT</u>	22 - 11 - 11	<u>D-DISNISDOCICHGDOSE</u>
11 - 11 - 40	<u>THDUP/VISDOC/REFER</u>	22 - 11 - 12	<u>D-DIS/VISDOC/CHG RGM</u>
11 - 11 - 90	<u>THDUP/VISDOC/D.A.W.</u>	22 - 11 - 21	<u>D-DISNISDOCIDC DRUG</u>
11 - 20 - 30	<u>THDUP/OTHRPH/CNSL PT</u>	22 - 11 - 22	<u>D-DIS/VISDOC/NOT DSP</u>
11 - 20 - 40	<u>THDUP/OTHRPH/REFER</u>	22 - 11 - 30	<u>D-DISNISDOCICNSL PT</u>
11 - 30 - 22	<u>THDUP/CNSTAT/NOT DSP</u>	22 - 11 - 40	<u>D-DISNISDOCIREFER</u>
11 - 30 - 40	<u>THDUP/CNSTAT/REFER</u>	22 - 11 - 90	<u>D-DIS/VISDOC/D.A.W.</u>
11 - 31 - 40	<u>THDUP/PT.EVL/REFER</u>	22 - 20 - 30	<u>D-DIS/OTHRPH/CNSL PT</u>
21 - 10 - 01	<u>D-DI /PHNDOC/CHG DRG</u>	22 - 20 - 40	<u>D-DIS/OTHRPH/REFER</u>
21 - 10 - 02	<u>D-DI /PHNDOC/ADD DRG</u>	22 - 30 - 40	<u>D-DIS/CNSTAT/REFER</u>
21 - 10 - 05	<u>D-DI /PHNDOC/ADD OTC</u>	22 - 31 - 40	<u>D-DIS/PT.EVUREFER</u>
21 - 10 - 11	<u>D-DI /PHNDOC/CHGDOSE</u>	23 - 10 - 01	<u>C-IND/PHNDOC/CHG DRG</u>
21 - 10 - 12	<u>D-DI /PHNDOC/CHG RGM</u>	23 - 10 - 02	<u>C-IND/PHNDOC/ADD DRG</u>
21 - 10 - 21	<u>D-DI /PHNDOC/DC DRUG</u>	23 - 10 - 04	<u>C-IND/PHNDOC/THR SUB</u>
21 - 10 - 22	<u>D-DI /PHNDOC/NOT DSP</u>	23 - 10 - 05	<u>C-IND/PHNDOC/ADD OTC</u>
21 - 10 - 30	<u>D-DI /PHNDOC/CNSL PT</u>	23 - 10 - 11	<u>C-IND/PHNDOC/CHGDOSE</u>
21 - 10 - 40	<u>D-DI /PHNDOC/REFER</u>	23 - 10 - 12	<u>C-IND/PHNDOC/CHG RGM</u>
21 - 10 - 90	<u>D-DI /PHNDOC/D.A.W.</u>	23 - 10 - 21	<u>C-IND/PHNDOC/DC DRUG</u>
21 - 11 - 01	<u>D-DI NISDOCICHG DRG</u>	23 - 10 - 22	<u>C-INDIPHNDOCINOT DSP</u>
21 - 11 - 02	<u>D-DI NISDOCIADD DRG</u>	23 - 10 - 30	<u>C-IND/PHNDOC/CNSL PT</u>
21 - 11 - 05	<u>D-DI /VISDOC/ADD OTC</u>	23 - 10 - 40	<u>C-IND/PHNDOC/REFER</u>

CARE Payable Cognitive Service Codes as of 11/4/94

23 - 10 - 90	<u>C-INDIPHNDOC1D.A.W.</u>	25 - 11 - 01	<u>D-LABNISDOCICHG DRG</u>
23 - 11 - 01	<u>C-INDNISDOCICHG DRG</u>	25 - 11 - 02	<u>D-LAB/VISDOC/ADD DRG</u>
23 - 11 - 02	<u>C-IND/VISDOC/ADD DRG</u>	25 - 11 - 11	<u>D-LABNISDOCICHGDOSE</u>
23 - 11 - 05	<u>C-IND/VISDOC/ADD OTC</u>	25 - 11 - 12	<u>D-LABNISDOCICHG RGM</u>
23 - 11 - 11	<u>C-INDNISDOCICHGDOSE</u>	25 - 11 - 21	<u>D-LAB/VISDOC/DC DRUG</u>
23 - 11 - 21	<u>C-IND/VISDOC/DC DRUG</u>	25 - 11 - 22	<u>D-LAB/VISDOC/NOT DSP</u>
23 - 11 - 22	<u>C-INDNISDOCINOT DSP</u>	25 - 11 - 30	<u>D-LAB/VISDOC/CNSL PT</u>
23 - 11 - 30	<u>C-IND/VISDOC/CNSL PT</u>	25 - 11 - 40	<u>D-LAB/VISDOC/REFER</u>
23 - 11 - 40	<u>C-INDNISDOCIREFER</u>	25 - 11 - 90	<u>D-LAB/VISDOC/D.A.W.</u>
23 - 11 - 90	<u>C-IND/VISDOC/D.A.W.</u>	25 - 30 - 40	<u>D-LAB/CNSPAT/REFER</u>
23 - 20 - 30	<u>C-IND/OTHRPH/CNSL PT</u>	25 - 31 - 40	<u>D-LAB/PT.EVUREFER</u>
23 - 20 - 40	<u>C-IND/OTHRPH/REFER</u>	26 - 10 - 01	<u>PVADR/PHNDOC/CHG DRG</u>
23 - 30 - 40	<u>C-IND/CNSPAT/REFER</u>	26 - 10 - 02	<u>PVADR/PHNDOC/ADD DRG</u>
23 - 31 - 40	<u>C-IND/PT.EVUREFER</u>	26 - 10 - 05	<u>PVADR/PHNDOC/ADD OTC</u>
24 - 10 - 01	<u>D-FD /PHNDOC/CHG DRG</u>	26 - 10 - 11	<u>PVADR/PHNDOC/CHGDOSE</u>
24 - 10 - 02	<u>D-FD /PHNDOC/ADD DRG</u>	26 - 10 - 12	<u>PVADR/PHNDOC/CHG RGM</u>
24 - 10 - 05	<u>D-FD /PHNDOC/ADD OTC</u>	26 - 10 - 21	<u>PVADR/PHNDOC/DC DRUG</u>
24 - 10 - 11	<u>D-FD /PHNDOC/CHGDOSE</u>	26 - 10 - 22	<u>PVADR/PHNDOC/NOT DSP</u>
24 - 10 - 12	<u>D-FD /PHNDOC/CHG RGM</u>	26 - 10 - 30	<u>PVADR/PHNDOC/CNSL PT</u>
24 - 10 - 21	<u>D-FD /PHNDOC/DC DRUG</u>	26 - 10 - 40	<u>PVADR/PHNDOC/REFER</u>
24 - 10 - 22	<u>D-FD /PHNDOC/NOT DSP</u>	26 - 10 - 90	<u>PVADR/PHNDOC/D.A.W.</u>
24 - 10 - 30	<u>D-FD /PHNDOC/CNSL PT</u>	26 - 11 - 01	<u>PVADR/VISDOC/CHG DRG</u>
24 - 10 - 40	<u>D-FD /PHNDOC/REFER</u>	26 - 11 - 02	<u>PVADR/VISDOC/ADD DRG</u>
24 - 10 - 90	<u>D-FD /PHNDOC/D.A.W.</u>	26 - 11 - 05	<u>PVADR/VISDOC/ADD OTC</u>
24 - 11 - 01	<u>D-FD NISDOCICHG DRG</u>	26 - 11 - 11	<u>PVADR/VISDOC/CHGDOSE</u>
24 - 11 - 02	<u>D-FD /VISDOC/ADD DRG</u>	26 - 11 - 12	<u>PVADR/VISDOC/CHG RGM</u>
24 - 11 - 05	<u>D-FD /VISDOC/ADD OTC</u>	26 - 11 - 21	<u>PVADR/VISDOC/DC DRUG</u>
24 - 11 - 11	<u>D-FD NISDOCICHGDOSE</u>	26 - 11 - 22	<u>PVADR/VISDOC/NOT DSP</u>
24 - 11 - 12	<u>D-FD NISDOCICHG RGM</u>	26 - 11 - 30	<u>PVADR/VISDOC/CNSL PT</u>
24 - 11 - 21	<u>D-FD NISDOCIDC DRUG</u>	26 - 11 - 40	<u>PVADR/VISDOC/REFER</u>
24 - 11 - 22	<u>D-FD NISDOCINOT DSP</u>	26 - 11 - 90	<u>PVADR/VISDOC/D.A.W.</u>
24 - 11 - 30	<u>D-FD NISDOCICNSL PT</u>	26 - 20 - 30	<u>PVADR/OTHRPH/CNSL PT</u>
24 - 11 - 40	<u>D-FD NISDOCIREFER</u>	26 - 20 - 40	<u>PVADR/OTHRPH/REFER</u>
24 - 11 - 90	<u>D-FD /VISDOC/D.A.W.</u>	26 - 30 - 01	<u>PVADR/CNSPAT/CHG DRG</u>
24 - 30 - 40	<u>D-FD /CNSPAT/REFER</u>	26 - 30 - 40	<u>PVADR/CNSPAT/REFER</u>
24 - 31 - 40	<u>D-FD /PT.EVL/REFER</u>	26 - 31 - 40	<u>PVADR/PT.EVL/REFER</u>
25 - 10 - 01	<u>D-LAB/PHNDOC/CHG DRG</u>	26 - 51 - 90	<u>PVADR/REVLAB/D.A.W.</u>
25 - 10 - 02	<u>D-LAB/PHNDOC/ADD DRG</u>	27 - 10 - 01	<u>ADR /PHNDOC/CHG DRG</u>
25 - 10 - 11	<u>D-LAB/PHNDOC/CHGDOSE</u>	27 - 10 - 02	<u>ADR /PHNDOC/ADD DRG</u>
25 - 10 - 12	<u>D-LAB/PHNDOC/CHG RGM</u>	27 - 10 - 05	<u>ADR /PHNDOC/ADD OTC</u>
25 - 10 - 21	<u>D-LAB/PHNDOC/DC DRUG</u>	27 - 10 - 11	<u>ADR /PHNDOC/CHGDOSE</u>
25 - 10 - 22	<u>D-LAB/PHNDOC/NOT DSP</u>	27 - 10 - 12	<u>ADR /PHNDOC/CHG RGM</u>
25 - 10 - 30	<u>D-LAB/PHNDOC/CNSL PT</u>	27 - 10 - 21	<u>ADR /PHNDOC/DC DRUG</u>
25 - 10 - 40	<u>D-LAB/PHNDOC/REFER</u>	27 - 10 - 22	<u>ADR /PHNDOC/NOT DSP</u>
25 - 10 - 90	<u>D-LAB/PHNDOC/D.A.W.</u>	27 - 10 - 30	<u>ADR /PHNDOC/CNSL PT</u>

CARE Payable Cognitive Service Codes as of 11/4/94

27 - IO- 40	<u>ADR /PHNDOC/REFER</u>	29 - IO - 21	<u>OTHDG/PHNDOC/DC DRUG</u>
27 - IO- 90	<u>ADR /PHNDOC/D.A.W.</u>	29 - IO- 22	<u>OTHDG/PHNDOC/NOT DSP</u>
27 - 11 - 01	<u>ADR NISDOCICHG DRG</u>	29 - 10 - 30	<u>OTHDG/PHNDOC/CNSL PT</u>
27 - 11 - 02	<u>ADR /VISDOC/ADD DRG</u>	29 - IO - 40	<u>OTHDG/PHNDOC/REFER</u>
27 - 11 - 05	<u>ADR /VISDOC/ADD OTC</u>	29 - IO - 90	<u>OTHDG/PHNDOC/D.A.W.</u>
27 - 11 - 11	<u>ADR /VISDOC/CHGDOSE</u>	29 - 11 - 01	<u>OTHDG/VISDOC/CHG DRG</u>
27 - 11 - 12	<u>ADR /VISDOC/CHGRGM</u>	29 - 11 - 02	<u>OTHDG/VISDOC/ADD DRG</u>
27 - 11 - 21	<u>ADR NISDOCIDC DRUG</u>	29 - 11 - 03	<u>OTHDGNISDOCIGEN SUB</u>
27 - 11 - 22	<u>ADR NISDOCINOT DSP</u>	29 - 11 - 04	<u>OTHDG/VISDOC/THR SUB</u>
27 - 11 - 30	<u>ADR /VISDOC/CNSL PT</u>	29 - 11 - 05	<u>OTHDG/VISDOC/ADD OTC</u>
27 - 11 - 40	<u>ADR NISDOCIREFER</u>	29 - 11 - 11	<u>OTHDGNISDOCICHGDOSE</u>
27 - 11 - 90	<u>ADR /VISDOC/D.A.W.</u>	29 - 11 - 12	<u>OTHDG/VISDOC/CHG RGM</u>
27 - 20 - 30	<u>ADR /OTHRPH/CNSL PT</u>	29 - 11 - 21	<u>OTHDGNISDOCIDC DRUG</u>
27 - 20 - 40	<u>ADR /OTHRPH/REFER</u>	29 - 11 - 22	<u>OTHDG/VISDOC/NOT DSP</u>
27 - 30 - 12	<u>ADR /CNSPAT/CHG RGM</u>	29 - 11 - 30	<u>OTHDG/VISDOC/CNSL PT</u>
27 - 30 - 40	<u>ADR /CNSPAT/REFER</u>	29 - 11 - 40	<u>OTHDG/VISDOC/REFER</u>
27 - 31 - 40	<u>ADR /PT.EVL/REFER</u>	29 - 11 - 90	<u>OTHDG/VISDOC/D.A.W.</u>
28 - IO - 01	<u>CMPLX/PHNDOC/CHG DRG</u>	29 - 30 - 40	<u>OTHDG/CNSPAT/REFER</u>
28 - IO- 11	<u>CMPLX/PHNDOC/CHGDOSE</u>	29 - 31 - 40	<u>OTHDG/PT.EVUREFER</u>
28 - IO - 12	<u>CMPLX/PHNDOC/CHG RGM</u>	29 - 32 - 90	<u>OTHDG/PT.TRN/D.A. W.</u>
28 - IO - 21	<u>CMPLX/PHNDOC/DC DRUG</u>	29 - 40 - 02	<u>OTHDG/CNS3PY/ADD DRG</u>
28 - IO- 22	<u>CMPLX/PHNDOC/NOT DSP</u>	29 - 80 - 11	<u>OTHDG/MSCSVC/CHGDOSE</u>
28 - IO- 30	<u>CMPLX/PHNDOC/CNSL PT</u>	31 - IO - 05	<u>OVUTL/PHNDOC/ADD OTC</u>
28 - IO- 40	<u>CMPLX/PHNDOC/REFER</u>	31 - 10 - 11	<u>OVUTL/PHNDOC/CHGDOSE</u>
28 - 10 - 90	<u>CMPLX/PHNDOC/D.A.W.</u>	31 - 10 - 12	<u>OVUTL/PHNDOC/CHG RGM</u>
28 - 11 - 01	<u>CMPLX/VISDOC/CHG DRG</u>	31 - IO - 21	<u>OVUTL/PHNDOC/DC DRUG</u>
28 - 11 - 12	<u>CMPLX/VISDOC/CHG RGM</u>	31 - IO - 22	<u>OVUTUPHNDOC/NOT DSP</u>
28 - 11 - 21	<u>CMPLX/VISDOC/DC DRUG</u>	31 - IO - 30	<u>OVUTL/PHNDOC/CNSL PT</u>
28 - 11 - 22	<u>CMPLX/VISDOC/NOT DSP</u>	31 - IO - 40	<u>OVUTL/PHNDOC/REFER</u>
28 - 11 - 30	<u>CMPLX/VISDOC/CNSL PT</u>	31 - IO - 90	<u>OVUTL/PHNDOC/D.A.W.</u>
28 - 11 - 40	<u>CMPLX/VISDOC/REFER</u>	31 - 11 - 11	<u>OVUTL/VISDOC/CHGDOSE</u>
28 - 11 - 90	<u>CMPLX/VISDOC/D.A.W.</u>	31 - 11 - 12	<u>OVUTL/VISDOC/CHG RGM</u>
28 - 30 - 30	<u>CMPLX/CNSPAT/CNSL PT</u>	31 - 11 - 21	<u>OVUTLNISDOCIDC DRUG</u>
28 - 30 - 40	<u>CMPLYJCNSPATIREFER</u>	31 - 11 - 22	<u>OVUTL/VISDOC/NOT DSP</u>
28 - 31 - 40	<u>CMPLX/PT.EVL/REFER</u>	31 - 11 - 30	<u>OVUTL/VISDOC/CNSL PT</u>
28 - 32 - 30	<u>CMPLX/PT.TRN/CNSL PT</u>	31 - 11 - 40	<u>OVUTLNISDOCIREFER</u>
28 - 32 - 40	<u>CMPLX/PT.TRN/REFER</u>	31 - 11 - 90	<u>OVUTL/VISDOC/D.A.W.</u>
28 - 32 - 90	<u>CMPLX/PT.TRN/D.A.W.</u>	31 - 20 - 30	<u>OVUTL/OTHRPH/CNSL PT</u>
29 - IO - 01	<u>OTHDG/PHNDOC/CHG DRG</u>	31 - 20 - 30	<u>OVUTL/OTHRPH/CNSL PT</u>
29 - IO- 02	<u>OTHDG/PHNDOC/ADD DRG</u>	31 - 20 - 40	<u>OVUTL/OTHRPH/REFER</u>
29 - 10 - 03	<u>OTHDG/PHNDOC/GEN SUB</u>	31 - 30 - 22	<u>OVUTL/CNSPAT/NOT DSP</u>
29 - IO- 04	<u>OTHDG/PHNDOC/THR SUB</u>	31 - 30 - 30	<u>OVUTL/CNSPAT/CNSL PT</u>
29 - IO- 05	<u>OTHDG/PHNDOC/ADD OTC</u>	31 - 30 - 40	<u>OVUTL/CNSPAT/REFER</u>
29 - 10 - 11	<u>OTHDG/PHNDOC/CHGDOSE</u>	31 - 31 - 30	<u>OVUTL/PT.EVL/CNSL PT</u>
29 - 10 - 12	<u>OTHDG/PHNDOC/CHG RGM</u>	31 - 31 - 40	<u>OVUTL/PT.EVL/REFER</u>

CARE Pivable Cognitive Service Codes as of 11/4/94

31 - 32 - 30	<u>OVUTL/PT.TRN/CNSL PT</u>	33 - 31 - 40	<u>COMNC/PT.EVL/REFER</u>
31 - 40 - 30	<u>OVUTL/CNS3PY/CNSL PT</u>	33 - 32 - 30	<u>COMNC/PT.TRN/CNSL PT</u>
31 - 50 - 30	<u>OVUTL/REVCHT/CNSL PT</u>	33 - 40 - 30	<u>COMNC/CNS3PY/CNSL PT</u>
31 - 51 - 30	<u>OVUTL/REVLAB/CNSL PT</u>	33 - 50 - 30	<u>COMNC/REVCHT/CNSL PT</u>
31 - 60 - 30	<u>OVUTL/REVLIT/CNSL PT</u>	33 - 51 - 30	<u>COMNC/REVLAB/CNSL PT</u>
31 - 80 - 30	<u>OVUTL/MSCSVC/CNSL PT</u>	33 - 60 - 30	<u>COMNC/REVLIT/CNSL PT</u>
32 - 10 - 11	<u>UNUTUPHNDOCICHGDOSE</u>	33 - 80 - 30	<u>COMNCIMSCSVCICNSL PT</u>
32 - 10 - 12	<u>UNUTL/PHNDOC/CHG RGM</u>	34 - 10 - 01	<u>CSMGT/PHNDOC/CHG DRG</u>
32 - 10 - 21	<u>UNUTL/PHNDOC/DC DRUG</u>	34 - 10 - 02	<u>CSMGT/PHNDOC/ADD DRG</u>
32 - 10 - 22	<u>UNUTL/PHNDOC/NOT DSP</u>	34 - 10 - 03	<u>CSMGTIPHNDOCIGEN SUB</u>
32 - 10 - 30	<u>UNUTL/PHNDOC/CNSL PT</u>	34 - 10 - 04	<u>CSMGT/PHNDOC/THR SUB</u>
32 - 10 - 40	<u>UNUTL/PHNDOC/REFER</u>	34 - 10 - 05	<u>CSMGT/PHNDOC/ADD OTC</u>
32 - 10 - 90	<u>UNUTL/PHNDOC/D.A.W.</u>	34 - 10 - 11	<u>CSMGT/PHNDOC/CHGDOSE</u>
32 - 11 - 11	<u>UNUTL/VISDOC/CHGDOSE</u>	34 - 10 - 12	<u>CSMGT/PHNDOC/CHG RGM</u>
32 - 11 - 12	<u>UNUTL/VISDOC/CHG RGM</u>	34 - 10 - 21	<u>CSMGT/PHNDOC/DC DRUG</u>
32 - 11 - 21	<u>UNUTL/VISDOC/DC DRUG</u>	34 - 10 - 22	<u>CSMGT/PHNDOC/NOT DSP</u>
32 - 11 - 22	<u>UNUTL/VISDOC/NOT DSP</u>	34 - 10 - 30	<u>CSMGT/PHNDOC/CNSL PT</u>
32 - 11 - 30	<u>UNUTL/VISDOC/CNSL PT</u>	34 - 10 - 40	<u>CSMGT/PHNDOC/REFER</u>
32 - 11 - 40	<u>UNUTL/VISDOC/REFER</u>	34 - 10 - 90	<u>CSMGT/PHNDOC/D.A.W.</u>
32 - 11 - 90	<u>UNUTL/VISDOC/D.A.W.</u>	34 - 11 - 01	<u>CSMGTNISDOCICHG DRG</u>
32 - 20 - 30	<u>UNUTL/OTHRPH/CNSL PT</u>	34 - 11 - 02	<u>CSMGT/VISDOC/ADD DRG</u>
32 - 20 - 30	<u>UNUTL/OTHRPH/CNSL PT</u>	34 - 11 - 03	<u>CSMGT/VISDOC/GEN SUB</u>
2 - 20 - 40	<u>UNUTL/OTHRPH/REFER</u>	34 - 11 - 04	<u>CSMGT/VISDOC/THR SUB</u>
32 - 30 - 30	<u>UNUTL/CNSPAT/CNSL PT</u>	34 - 11 - 05	<u>CSMGT/VISDOC/ADD OTC</u>
32 - 30 - 40	<u>UNUTL/CNSPAT/REFER</u>	34 - 11 - 11	<u>CSMGT/VISDOC/CHGDOSE</u>
32 - 31 - 30	<u>UNUTL/PT.EVL/CNSL PT</u>	34 - 11 - 12	<u>CSMGTNISDOCICHG RGM</u>
32 - 31 - 40	<u>UNUTL/PT.EVL/REFER</u>	34 - 11 - 21	<u>CSMGT/VISDOC/DC DRUG</u>
32 - 32 - 30	<u>UNUTL/PT.TRN/CNSL PT</u>	34 - 11 - 22	<u>CSMGT/VISDOC/NOT DSP</u>
32 - 40 - 30	<u>UNUTL/CNS3PY/CNSL PT</u>	34 - 11 - 30	<u>CSMGT/VISDOC/CNSL PT</u>
32 - 50 - 30	<u>UNUTL/REVCHT/CNSL PT</u>	34 - 11 - 40	<u>CSMGTNISDOCIREFER</u>
32 - 51 - 30	<u>UNUTL/REVLAB/CNSL PT</u>	34 - 11 - 90	<u>CSMGT/VISDOC/D.A.W.</u>
32 - 60 - 30	<u>UNUTL/REVLIT/CNSL PT</u>	34 - 30 - 01	<u>CSMGT/CNSPAT/CHG DRG</u>
32 - 80 - 30	<u>UNUTL/MSCSVC/CNSL PT</u>	34 - 30 - 30	<u>CSMGT/CNSPAT/CNSL PT</u>
33 - 10 - 11	<u>COMNCIPHNDOCICHGDOSE</u>	34 - 30 - 40	<u>CSMGT/CNSPAT/REFER</u>
33 - 10 - 30	<u>COMNC/PHNDOC/CNSL PT</u>	34 - 31 - 30	<u>CSMGT/PT.EVUCNSL PT</u>
33 - 10 - 40	<u>COMNC/PHNDOC/REFER</u>	34 - 31 - 40	<u>CSMGT/PT.EVL/REFER</u>
33 - 10 - 90	<u>COMNC/PHNDOC/D.A.W.</u>	34 - 32 - 30	<u>CSMGT/PT.TRN/CNSL PT</u>
33 - 11 - 11	<u>COMNCNISDOCICHGDOSE</u>	34 - 32 - 90	<u>CSMGT/PT.TRN/D.A.W.</u>
33 - 11 - 30	<u>COMNCNISDOCICNSL PT</u>	34 - 50 - 40	<u>CSMGT/REVCHT/REFER</u>
33 - 11 - 40	<u>COMNC/VISDOC/REFER</u>	34 - 80 - 30	<u>CSMGT/MSCSVC/CNSL PT</u>
33 - 11 - 90	<u>COMNC/VISDOC/D.A.W.</u>	34 - 80 - 90	<u>CSMGT/MSCSVC/D.A.W.</u>
33 - 20 - 30	<u>COMNC/OTHRPH/CNSL PT</u>	35 - 10 - 01	<u>PTUTL/PHNDOC/CHG DRG</u>
33 - 30 - 30	<u>COMNC/CNSPAT/CNSL PT</u>	35 - 10 - 02	<u>PTUTL/PHNDOC/ADD DRG</u>
33 - 30 - 40	<u>COMNC/CNSPAT/REFER</u>	35 - 10 - 03	<u>PTUTL/PHNDOC/GEN SUB</u>
3 - 31 - 30	<u>COMNC/PT.EVL/CNSL PT</u>	35 - 10 - 04	<u>PTUTL/PHNDOC/THR SUB</u>

CARE Payable Cognitive Service Codes as of 1114194

35- 10 - 05 PTUTL/PHNDOC/ADD OTC
35- IO- 11 PTUTL/PHNDOC/CHGDOSE
35- 10 - 12 PTUTL/PHNDOC/CHG RGM
35- IO- 21 PTUTUPHNDOC/DCDRUG
35- IO- 22 PTUTUPHNDOC/NOTDSP
35- IO- 30 PTUTL/PHNDOC/CNSL PT
35- IO- 40 PTUTL/PHNDOC/REFER
35- IO- 90 PTUTL/PHNDOC/D.A.W.
35- II- 01 PTUTL/VISDOC/CHG DRG
35- II- 02 PTUTL/VISDOC/ADD DRG
35- II- 03 PTUTL/VISDOC/GEN SUB
35- 11 - 04 PTUTL/VISDOC/THR SUB
35- 11 - 05 PTUTL/VISDOC/ADD OTC
35- 11 - 11 PTUTL/VISDOC/CHGDOSE
35- 11 - 12 PTUTL/VISDOC/CHG RGM
35- 17 - 21 PTUTL/VISDOC/DC DRUG
35- II - 22 PTUTL/VISDOC/NOT DSP
35- II - 30 PTUTL/VISDOC/CNSL PT
35- 11 - 40 PTUTL/VISDOC/REFER
35- 11 - 90 PTUTL/VISDOC/D.A.W.
35- 20 - 30 PTUTL/OTHRPH/CNSL PT
35- 20 - 30 PTUTL/OTHRPH/CNSL PT
35- 20 - 40 PTUTUOTHRPH/REFER
35- 30 - 01 PTUTL/CNSPAT/CHG DRG
35- 30 - 30 PTUTL/CNSPAT/CNSL PT
35- 30 - 40 PTUTL/CNSPAT/REFER
35- 31 - 30 PTUTL/PT.EVL/CNSL PT
35- 31 - 40 PTUTL/PT.EVL/REFER
35- 32 - 30 PTUTUPT.TRN/CNSLPT
35- 40 - 30 PTUTL/CNS3PY/CNSL PT
35- 50 - 30 PTUTL/REVCHT/CNSL PT
35- 51 - 30 PTUTL/REVLAB/CNSL PT
35- 60 - 30 PTUTL/REVLIT/CNSL PT
35- 80 - 30 PTUTL/MSCSVC/CNSL PT
41- 10 - 02 SYMPT/PHNDOC/ADD DRG
41- II - 02 SYMPT/VISDOC/ADD DRG
41- 11 - 22 SYMPTNIVISDOCINOTDSP
41- 30 - 40 SYMPT/CNSPAT/REFER
41- 31 - 02 SYMPT/PT.EVL/ADD DRG
41- 31 - 40 SYMPT/PT.EVL/REFER
42- IO- 02 ASYMP/PHNDOC/ADD DRG
90- 10 - 01 MISC /PHNDOC/CHG DRG

Appendix C: Sample Recruitment Announcement

The Pharmacist A.R.E. Project

July 1994

COME ON BOARD -- THERE'S STILL TIME!! REGISTRATION PACKETS AVAILABLE NOW!

WHAT IS THE STUDY ABOUT?

The study will determine:

- How often pharmacists perform cognitive services as part of their routine practice.
- * The action taken by pharmacists and the health outcomes resulting from cognitive services.
- * The effect of *payment* on pharmacists' performance of cognitive services.
- * 200 pharmacies will be selected at random from those volunteering to participate

Washington is the only state to receive funding from the Health Care Financing Administration for this type of study. The results will likely impact Federal policy regarding recognition and payment of pharmacists for cognitive services.

WHO IS ELIGIBLE TO PARTICIPATE?

- * **Community or ambulatory pharmacies** throughout Washington.
Pharmacies that dispense at least 50 Medicaid prescriptions per month.

WHAT MUST I DO TO PARTICIPATE IN THE STUDY?

- * Sign an agreement with Medicaid that you will participate in the study regardless of whether you receive payment from Medicaid for documenting your cognitive services only, or documentation reimbursement plus a fee for the cognitive service you perform.

Meet for a training session and periodic review sessions held in your area.

- * Document your cognitive services provided for Medicaid patients using either paper or a *computerized* documentation method and send this information to the University of Washington at least monthly,
- * Half of the pharmacies in the study will also be billing Medicaid on a fee-for-service basis for the cognitive services they document.

HOW WILL COGNITIVE SERVICES BE PAID?

- * All participating pharmacies will be **paid \$40 per month** to document their cognitive services for Medicaid patients.
- * 100 **pharmacies** will be randomly selected to **receive a reimbursement of \$4.00 or \$6.00** for most cognitive services billed through customary billing mechanisms for Medicaid.

WHEN DOES DOCUMENTATION BEGIN AND HOW LONG WILL IT LAST?

- * The developmental phase will last one to two months after the initial training session.
- * Documentation began February 1994, and will last **12 months**.

WHO DO I CONTACT FOR INFORMATION OR QUESTIONS?

- * Amber Andrews at (206) 685-2559
- * Rod Shafer at (206) 367-4566
- * Nancy Neil at (206) 616-1044
- * Dale Christensen at (206) 543-1412

You may also send requests for information to:

The University of Washington
School of Pharmacy, SC-69
Seattle, WA 98195 (Attn. Amber Andrews) Fax number: (206) 685-9615

This study is being conducted jointly between the University of Washington School of Pharmacy and the Washington State Medical Assistance Administration (formerly DSHS).

The Pharmacist  A.R.E. Project
Cognitive Activities & Reimbursement Effectiveness

July 5, 1994

Dear Pharmacist:

We are pleased to offer you the opportunity to participate in a landmark study of payment for cognitive services. Washington is the only state in the country that received funding from the Health Care Financing Administration (HCFA) to study documentation and reimbursement of community pharmacists' cognitive services for Medicaid patients.

The purpose of the study is to assess whether the provision of pharmacists' cognitive services that are reimbursed will lead to improved health outcomes for patients. Cognitive services provided by pharmacist include identifying and resolving potential medication problems, and interacting with the prescriber and the patient in making decisions about appropriate drug therapy. The project will involve over 200 community pharmacies throughout the state. Pharmacists will document cognitive services provided for Medicaid patients and receive \$40 per month for these services for 12 months. Documentation of cognitive services began in February 1994, but we are continuing to add pharmacists who want to be involved in this study.

If you are interested in this study, please complete the enclosed application and return it to the University of Washington or fax it to the School of Pharmacy at (206) 5433835. Completion of this application does not obligate you to participate, but will indicate your interest in this study. You will be contacted later regarding your final decision to participate. Should you have questions about this study, please contact me.

Sincerely,

Amber Andrews

Amber Andrews, R.Ph., M.P.H.
Co-Investigator
(206) 6852559

Rod Shafer

Rod Shafer, R.Ph.
Clinical Assistant Professor
(206) 367-4566

Encl.

*University of Washington School of Pharmacy, SC-69 Seattle, Washington 98195
(206) 543-6788 FAX: (206) 543-3835
Toll Free Number: 1-800-801-9076*

Appendix D: Pharmacy Participation Contracts

(LONG FORM)

CONTRACT NO: _____

AGREEMENT
BETWEEN

STATE OF WASHINGTON
DEPARTMENT OF SOCIAL AND HEALTH SERVICES

AND

DSHS #

THIS AGREEMENT is entered into by and between the DEPARTMENT OF SoCIAL AND HEALTH SERVICES, hereinafter referred to as "DSHS," and _____, hereinafter referred to as the "Contractor "

IT IS THE PURPOSE OF THIS CONTRACT TO provide therapy-related cognitive services for **Medicaid-eligible** clients pursuant to a demonstration project funded by the Health Care Financing Administration (HCFA). Pharmacists who are certified providers in the Medicaid program will be reimbursed for providing "**cognitive services**" during the normal course of dispensing prescriptions. Cognitive **services** are defined as those services provided by a pharmacist to or for a patient or health care professional that are either judgmental **oreducational** in nature rather than technical or informational. The demonstration focuses primarily on documenting cognitive services associated with identifying and resolving drug therapy-related problems, and associated consultation or counseling services.

This **project**, being conducted in collaboration with the University of Washington (UW) School of Pharmacy, will reimburse 200 selected pharmacies consenting to participate in the study. participating pharmacies must agree to a random designation into Group A or B.'

Regardless of group designation; a pharmacy will receive a study participation stipend for performing and documenting cognitive services, as detailed below. If **selected** for Group A, a pharmacy will be asked to submit a separate document for each cognitive service performed and claim submitted for which it will receive an additional fee. A pharmacy will be informed of its status as a Group A or B pharmacy prior to the starting date of the reimbursement period. At that time the **pharmacy will** be given further instructions on the specific procedures for submitting a claim.

IT IS, THEREFORE, MUTUALLY AGREED THAT:

STATEMENT OF WORK

The contractor shall furnish the necessary personnel and services and otherwise do **all** things necessary for or incidental to the performance of the work set forth below.

1. Cocmitive Services

The contractor shall provide cognitive services to **Medicaid-**eligible clients during the normal course of dispensing prescriptions. These services include, but are not limited to:
(a) identify potential patient disease or drug related therapy problems; (b) **conduct intervention** activities to explore or resolve

these problems; and (c) document the outcome of identified problems.

2. Trainina Sessions

The contractor shall have at least one designated pharmacist . **attend four** training and feedback sessions conducted by the uw . School of Pharmacy. These sessions. will help to explain the purpose of the study, orient pharmacies to the documentation and billing procedures and cognitive services codes, provide periodic feedback to participants on cognitive services documentation activities, and provide a forum for participant discussion of common experiences in documenting cognitive services.

3. Routine Documentation of Coanitive Services (All Pharmacies)

The contractor must agree to document the cognitive services provided to **Medicaid-eligible** patients by pharmacy personnel. The services must be documented: 1) on specially prepared forms (see Appendix A), or 2) using specially prepared computer software that records the same information as appears on the documentation form. Each contractor with'a software-compatible computer system will be provided the software for its exclusive use during the study. Usage of the software is voluntary. In addition, the **UW** will **supply interested** software vendors with specifications **necessary to** modify their software for electronic documentation. All copies of the software must be returned to DSHS at the end of the project if so requested. The contractor must submit documents (coding forms or computer floppy disks) in a provided mailing envelope at least once each month.

TERMS AND CONDITIONS

All rights and obligations of the parties to this contract shall be subject to and governed by the Special Terms and Conditions contained in the text of this contract and the General Terms and Conditions attached hereto as Appendix B and incorporated herein.

PERIOD OF PERFORMANCE

Subject to other provisions, the period of performance of this contract shall commence **on September 1, 1994** and be completed on or about January 31, **1995**, unless terminated sooner as provided herein.

IN CONSIDERATION WHEREOF:

DSHS shall pay to the Contractor for those services provided herein as follows:

1. Procedure for **Compensating Pharmacies for Participating in the Study.**

In order to establish a break-in and baseline period, the contractor shall document cognitive services for a period of at least 30 **days prior** to the start of the compensation period. The contractor will receive \$40.00 monthly for twelve months.

The contractor must submit a DSHS invoice voucher. Partially completed vouchers will be given to each participating pharmacy for this purpose.

2. Procedure for Reimbursement of **Cognitive Services (Applies to Group A Pharmacies Only):**

Payment for cognitive services will be based on submitted claim forms with date of service during the reimbursement period.

The contractor will receive notification of group status and the starting date of this phase of the reimbursement.

The claim form for cognitive services is identical in structure to existing claim forms for prescriptions. For a cognitive services claim, the information submitted differs in these respects:

a) The National Drug Code (NDC) field is used to identify the claim as a cognitive services claim. A unique cognitive services code must be entered into this field. The Cognitive Services Code has the following general format:

88888-PP-II-RR, where:

- 88888 - replaces the labeler field for the NDC to identify the claim as a cognitive services claim.
- PP - two digit problem code (see appendix).
- II - two digit intervention code.
- RR - two digit process-outcome code.

Cognitive services claims eligible for reimbursement will be those with all fields completed, and those with cognitive service codes indicating a change in drug therapy including a decision not to dispense a prescription, or for an extended patient counseling activity when performed pursuant to an identified problem or with prescriber notification or consent or for other codes specified by DSHS. A list of cognitive service codes eligible for reimbursement is contained in Appendix C. This list may be modified at a later date. If modified, pharmacists will be informed at least 15 days before changes are implemented.

If the contractor chooses to use a computer to document cognitive services and generate DSHS claims, it may be necessary to incorporate cognitive services codes and descriptors into the drug data file of the contractor's computer system. A data disk will be provided for this purpose. However, it is possible this may require hand-entry on site if the contractor's computer support vendor cannot perform this service or if the contractor cannot directly input data from the disk provided. The contractor must bear any costs for this entry.

b) The Quantity field is used to record the total amount of pharmacist time involved in the cognitive service activity. Pharmacists must record the time to the nearest minute. This field **will** be used to determine the level of reimbursement (i.e. \$4.00 if the time is **six minutes** or less or \$6.00 if the recorded time is more than six minutes).

c) Pharmacies will receive reimbursement and remittance advice in the same manner as for other **DSHS prescription** claims.

IT IS FURTHER MUTUALLY AGREED THAT:

In the event that funding from the state, federal, or other sources is withdrawn, reduced, exhausted or limited in any way, DSHS may terminate this agreement. Termination of this agreement will not affect the provider's participation in the Medicaid program under the Core Provider Agreement.

ORDER OF PRECEDENCE

The contractor agrees to abide by the terms of this agreement, the Core Provider' Agreement, and by all applicable federal and state statutes, **rules**, and procedures.

In the event of an inconsistency in **this** contract, unless otherwise provided herein, the inconsistency shall be resolved by **giving precedence** in the following order:

- a) Applicable Federal and State Statutes and Regulations;
- b) Special Terms and Conditions, including the Statement of Work;
- c) General Terms and Conditions; and
- d) Any other provisions of the contract whether incorporated by reference or otherwise.

ALL WRITINGS CONTAINED HEREIN

This agreement contains all the terms and conditions agreed upon by the parties. No other understandings, oral or otherwise, regarding the subject matter of this agreement shall be deemed to exist or to bind any of the parties hereto.

IN WITNESS WHEREOF, the undersigned have affixed' their signatures in execution thereof.

~~CONTRACTOR~~ _____

DATE: _____

STATE OF WASHINGTON, DSHS

DATE: _____

APPROVED AS TO FORM ONLY BY
THE OFFICE OF THE ATTORNEY
GENERAL



DEPARTMENT OF SOCIAL AND HEALTH SERVICES

CONTRACT AMENDMENT
PAGE 1 of 1 PAGES

1. NAME AND ADDRESS OF CONTRACTOR	2. CONTRACT AND AMENDMENT NUMBERS	
	CONTRACT NO.	AMENDMENT NO.

3. THIS ITEM APPLIES ONLY TO BILATERAL AMENDMENTS.

THE CONTRACT IDENTIFIED HEREIN, INCLUDING ANY PREVIOUS AMENDMENTS THERETO, IS HEREBY AMENDED AS SET FORTH IN ITEM 5 BELOW, BY MUTUAL CONSENT OF ALL PARTIES HERETO.

4. THIS ITEM APPLIES ONLY TO UNILATERAL AMENDMENTS.

THE CONTRACT IDENTIFIED HEREIN, INCLUDING ANY PREVIOUS AMENDMENTS THERETO, IS HEREBY UNILATERALLY AMENDED AS SET FORTH IN ITEM 5 BELOW PURSUANT TO THAT CHANGES AND MODIFICATIONS CLAUSE AS CONTAINED THEREIN.

5. DESCRIPTION OF AMENDMENT.

A. The period of performance is extended from February 1, 1995 through September 30, 1995.

B. The consideration is increased by \$320.00. The maximum consideration for the entire period is \$800.00.

6. ALL OTHER TERMS AND CONDITIONS OF THE ORIGINAL CONTRACT AND ANY PREVIOUS AMENDMENTS THERETO REMAIN IN FULL FORCE AND EFFECT.

7. THIS IS A UNILATERAL AMENDMENT. SIGNATURE OF CONTRACTOR IS NOT REQUIRED BELOW.

CONTRACTOR HEREBY ACKNOWLEDGES AND ACCEPTS THE TERMS AND CONDITIONS OF THIS AMENDMENT. SIGNATURE 1.5 REQUIRED BELOW.

OR THE CONTRACTOR,

8. THIS DOCUMENT HAS BEEN APPROVED AS TO FORM BY THE ASSISTANT ATTORNEY GENERAL

10. FOR THE DEPARTMENT OF SOCIAL AND HEALTH SERVICES

(SIGNATURE)

DATE

DSHS CONTRACTING OFFICER (SIGNATURE)

DATE

Appendix E: CARE Training Manual



Payment of Pharmacists for Cognitive Services

Training Manual

Prepared by:

G. Ainber Andrews, M.P.H., **R.Ph.**
Peggy S. Odegard, Pharm. D.

In Collaboration with:

Dale B. Christensen, Ph.D.
Garth Holmes, MA, **R.Ph.**
William E. Fassett., **Ph.D., R.Ph.**
Andy Stergachis, Ph D., **R.Ph.**
Rodney D. Shafer, **R.Ph.**

The University of Washington
Department of **Pharmacy Research** Program
School of Pharmacy SC-69
Seattle, WA 98195

This project is being funded by the Health Care Financing Administration and is being conducted jointly between the University of Washington School of Pharmacy and the Washington State Department of Social and Health Services.

WELCOME TO
The Pharmacist CARE Project

Health care and pharmacy are going to experience many changes in the near future, and pharmacy's role and involvement in these changes will affect many of the decisions that will be made. The Pharmacist CARE Project is receiving national attention, Washington is the only state in the country that received funding from the Health Care Financing Administration to study documentation **and** reimbursement of community pharmacists' cognitive services for Medicaid patients. We have a unique opportunity to develop and evaluate a new reimbursement model for pharmacy through this study. The results of your efforts in this study will be extremely useful when decisions about future pharmacy reimbursement policies are made by many different organizations and administrators.

It is exciting to be a part of what will mold some of the health care changes that will occur while the entire country focuses on Washington state and The Pharmacist CARE Project. Thank you for your willingness to be involved in this study and the service you will provide our pharmacy profession!

This packet contains information and material you will need to participate in the Pharmacist CARE Project and includes the following material:

- Cognitive Services Overview
- Study Highlights
- Area CARE Coordinator Responsibilities and Contacts
- Paper Documentation Form (Sample)
- Definitions for Cognitive **Service** Elements:
 - Problem, Intervention, Result, and Morbidity Risk
- Documentation Process
- Submission of Documented Cognitive Services to the University of Washington
- Full Screen Computerized Documentation Program Information
- Pop-Up Screen Computerized Documentation Program Information
- **Pharmacy** Participation Stipend
- Method for Creating a Cognitive Service Prescription
- Method for Billing DSHS for a Cognitive Service Prescription
- Cognitive Service Payment Rules
- Cases to Practice Documentation of Cognitive Services

We welcome your comments and questions as this material is reviewed with you. Many questions **will** likely be answered at the end of this session when we will demonstrate the use of the paper documentation form and both computerized documentation programs. The cases at the end of this manual will provide you with an opportunity to practice documenting cognitive services.

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Cognitive Services Overview



OBRA '90 - A Federal Budget Reconciliation Act

- * Changed the reimbursement rules for pharmaceuticals and it imposed new requirements for the delivery of 'pharmaceutical services'.

OBRA '90 Requirements

- * On-site Prospective **drug use** review requirement to evaluate the appropriateness of drug therapy before a product is dispensed for Medicaid patients This **includes** screening for therapeutic duplication, drug-drug and drug-disease interactions, drug allergies, clinical abuse/misuse.
- * Counseling must be offered to Medicaid patients
- * Demonstration projects to study payment of pharmacists for **cognitive** services
- * Demonstration projects to study on-line prospective DU R

Definition of Cognitive Service

- * Those **services provided** by a pharmacist to or for a patient that are either judgmental or educational in nature rather than technical or **informational**.
(*American Pharmaceutical Association, 1988*)
- * The responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life. (*Hepler and Strand, 1990*)

Examples of Cognitive Services

- * Screening and evaluating drug **therapy**
- * Monitoring patient compliance with **drug** therapy
- * Assessing symptoms of patients seeking care
- * Extended patient training to assure understanding and proper use of drugs

Rationale for Cognitive Services

- * Suboptimal prescribing
- * Patient noncompliance
- * Drug related illnesses
- * Avoidable health care expenditures

Economic Results of Previous Community Pharmacy Cognitive Service Studies

Results from the community pharmacy cognitive service studies cited below indicate:

- * Cognitive services decrease overall drug costs
- * Cognitive services decrease adverse health outcomes and avoid health care costs

Estimation of Potentially Avoided Health Care Costs Due to Pharmacists' Cognitive Services and Interventions			
	Potentially Avoided Cost / Harmful Error	Potentially Avoided Cost / Intervention	Potentially Avoided Cost / Rx Screened
Rupp, M. et al (1988, Indiana)	\$28.78	\$7.15	\$0.19
Rupp, M. et al (1990 Five state study including Washington)	\$435.31	\$122.98	\$2.32
Andrews, A. et al (1991, Washington)	\$85.34	\$40.11	\$0.92

The Pharmacist A.R.E. Project

WHAT IS THE STUDY ABOUT?

The study will determine:

- * How often pharmacists perform cognitive services as part of their routine practice.
- * The action taken by pharmacists and the health outcomes resulting from cognitive services.
- * The effect of payment on pharmacists' performance of cognitive services.

Washington is the only state to receive funding from the Health Care Financing Administration for this type of study. The results may have a significant impact on Federal policy regarding recognition and payment of pharmacists for cognitive services.

WHO IS ELIGIBLE TO PARTICIPATE?

- * Community or ambulatory pharmacies throughout Washington.
- * 200 pharmacies selected at random from those volunteering to participate.
- * Pharmacies that dispense at least 50 Medicaid prescriptions per month

WHAT MUST I DO **TO PARTICIPATE** IN THE STUDY?

- * Sign an agreement with Medicaid that you will participate in the study regardless of whether you receive payment from Medicaid for documenting your cognitive services only, or documentation reimbursement plus a fee for the cognitive service you perform
- * Attend a training session and periodic review sessions held in your area
- * Document your cognitive services provided for Medicaid patients using **either paper or a computerized** documentation method and send this information to the University of Washington at least monthly. The computerized documentation program can be used if it is compatible with your pharmacy's software system and has your software vendor's approval, if needed
- * Half of the pharmacies in the study will also be billing Medicaid on a fee-for-service basis for the cognitive services they document.

HOW WILL COGNITIVE SERVICES BE PAID?

- * All participating pharmacies **will** be paid \$40 per month to document their cognitive services for Medicaid patients
- * 100 pharmacies will be randomly selected to receive a reimbursement of \$4.00 or \$6.00 for most cognitive services billed through customary Medicaid billing processes

WHEN DOES DOCUMENTATION BEGIN AND HOW LONG WILL IT LAST?

- * The developmental **phase** will last one to two months after the initial training sessions.
- * Documentation is expected to begin February 1994, and will last 12 months.

WHO DO I CONTACT FOR INFORMATION OR QUESTIONS?

- * 1-800-801-9076 for general questions and information
- * Amber Andrews at (206) 685-2559
- * Rod Shafer at (206) 367-4566
- * Peggy Odegard at (206) 543-0760
- * Dale Christensen at (206) 543-1412

You may also obtain information by contacting: Amber Andrews, Project Director
University of Washington
School of Pharmacy, SC-69
Seattle, WA 98195
Fax number: (206) 685-9615

The Pharmacist A.R.E. Project

Area CARE Coordinators

Responsibilities:

1. Oversee the activities of four to eight pharmacies in the coordinator's **area** with respect to this study.
2. Assist with arranging an initial training meeting for pharmacists participating in this study. Assist with arranging two to three follow-up meetings.
3. Attend the initial training meeting and all follow-up meetings
4. Provide a training video for pharmacists unable to attend the scheduled meeting. *(Participation **in** the study requires attendance of the initial training meeting. If it is not possible for a participant to attend this meeting, then a videotape of the meeting must be viewed and the study discussed with the Area CARE Coordinator.)*
5. Maintain contact with pharmacies to assure appropriate and continuous documentation of cognitive **services** provided for Medicaid patients
6. Answer questions from participating pharmacists about the documentation of cognitive services
7. Consult with study investigators or computer support personnel to answer questions, as needed_
6. Maintain contact with **the** study investigators and/or the project director regarding study progress at the pharmacies.

Payment:

Area **CARE** Coordinators will be paid \$30 for every pharmacy they supervise **during** the study..

Study Investigators to contact for questions:

Amber Andrews, **R.Ph.**, M.P.H.
(206) 685-2559
CARE Study Fax: (206) 685-9615

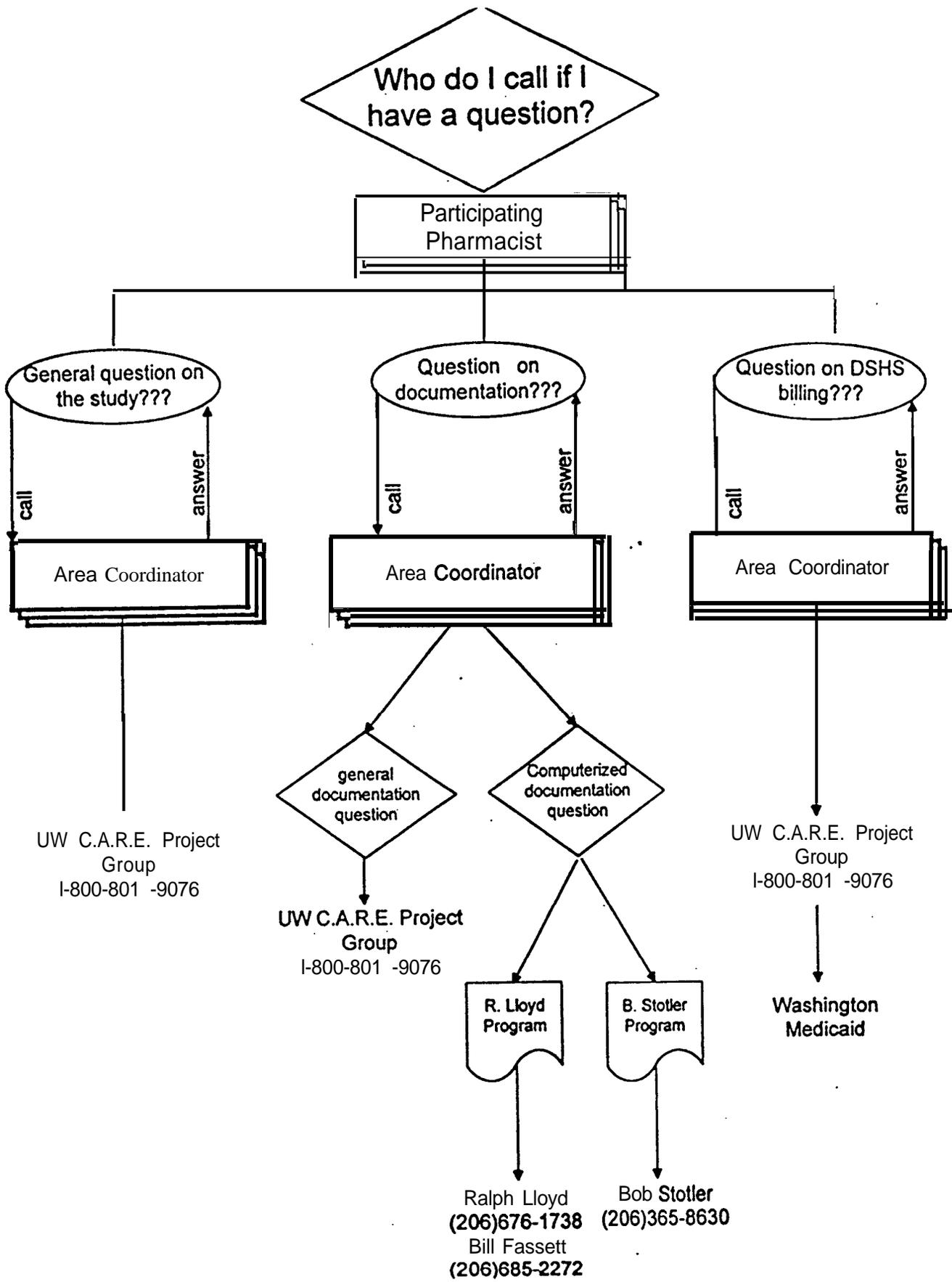
Rod Shafer, **R.Ph.**
(206) 3674566

Peggy Odegard, Pharm D.
(206) 543-0760

Bob Stotler, Computer Consultant
Full Screen Computer Program
(206) 365-8630

Bill Fassett, Computer Consultant
Pop-Up Screen Computer Program
(206) 685-2272

Toll free number: 1-800-801-9076



SITE ID _____ Date _____ Rx # _____ RPh Initials _____ Total Time (Min.) _____

ORIGINAL RI INFORMATION		DISPENSED Rx INFORMATION	
NDC#:	QTY:	NDC#:	QTY:

Problem:

___ SUBOPTIMAL Drug 01
 ___ SUBOPTIMAL Dose 02
 ___ SUBOPTIMAL Dosage regimen 03
 ___ SUBOPTIMAL Dosage form 04
 ___ SUBOPTIMAL Duration of use 05
 ___ SUBOPTIMAL: Unnecessary drug therapy 06
 ___ DRUG: Therapeutic duplication 11
 ___ DRUG-Drug interaction 21
 ___ DRUG-Disease interaction 22
 ___ DRUG-Allergy/intolerance 23
 ___ DRUG-Food interaction 24
 ___ DRUG-Lab test interaction 25
 ___ ADR: Preventable 26
 ___ ADR: Observed 27
 ___ DRUG: Complex administration 28
 ___ DRUG: Other specific problem 29
 ___ PATIENT Over-utilization of drug 31
 ___ PATIENT Under-utilization of drug 32
 ___ PATIENT Communication difficulty 33
 ___ PATIENT Case managed 34
 ___ PATIENT: Other improper use of drug 35
 ___ PATIENT Seeking care: with symptoms 41
 ___ PATIENT Seeking care: NO symptoms 42
 ___ OTHER NON-drug problems 90
 Third Party Type: 001 Medicaid
 WASHINGTON Pharmacist CARE Project Documentation Form

Intervention:

___ CONSULT Prescriber phone/fax 10
 ___ CONSULT Prescriber in person 11
 ___ CONSULT RPh at another pharmacy 20
 ___ CONSULT Patient 30
 ___ PATIENT Assessment 31
 ___ PATIENT Training 32
 ___ CONSULT Medicaid (3rd Party Payor) 40
 ___ REVIEW Profile or chart 50
 ___ REVIEW Laboratory tests 51
 ___ REVIEW Literature 60
 ___ OTHER 80

Result:

___ CHANGE To drug of choice 01
 ___ ADD Rx drug therapy 02
 ___ SUBSTITUTION: Generic 03
 ___ SUBSTITUTION: Therapeutic 04
 ___ ADD OTC drug therapy 05
 ___ CHANGE Dose 11
 ___ CHANGE Dosage regimen 12
 ___ DISCONTINUE Drug 21
 ___ DO NOT dispense 22
 ___ COUNSEL Patient 30
 ___ REFERRAL 40
 ___ DISPENSE As Written 90
 Morbidity Risk: ___ Low(1) ___ Moderate(2) ___ High(3)
 CS Code [NDC] #: 88888 - - - - -

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SAMPLE

Definitions for Cognitive Service Elements
Problem, Intervention, Result, and Morbidity Risk

PROBLEM

Non-optimal prescribing:

- 01 Suboptimal Drug Inappropriate, incorrect, or less than optimal drug prescribed for the patient's condition based upon standard drug therapy recommendations, formulary restrictions. (e.g. A broad spectrum cephalosporin prescribed for an ear infection when an alternative such as **Amoxicillin**® has not been tried which is both appropriate and less expensive.) This problem category does not include problem -categories 2 1-29 listed below.
- 02 Suboptimal Dose Inappropriate, incorrect, or less than optimal dose of drug prescribed for the patient's condition. (e.g. Dose is too high or too low when evaluated against clinically recommended amount).
- 03 Suboptimal Dosage regimen Inappropriate, incorrect, or less than **optimal** dosage regimen ordered for the drug prescribed (e.g. Drug is prescribed to be taken twice daily when usual therapy is three times daily for appropriate therapeutic effect)
- 04 Suboptimal Dosage form Inappropriate, incorrect or less than optimal drug dosage form for the patient (e.g. Capsules for infants or colostomy patients).
- 05 Suboptimal Duration of use Drug prescribed for inappropriate or less than optimal length of time. (e.g. Duration of drug therapy is too long or too short).
- 06 Suboptimal: Unnecessary drug therapy Drug prescribed is not needed by the patient based on the problem or diagnosis presented (No drug is needed).

Drug-Specific Problems:

- 11 Drug: Therapeutic duplication Drug prescribed when the patient is already taking a therapeutically equivalent drug (e.g. Patient is prescribed a drug which is an H-2 antagonist when already taking an H-2 antagonist).
- 21 Drug-Drug interaction Interaction that requires communication with prescriber and patient counseling due to severity of drug-drug interaction. (e.g. Class 1 interaction as categorized by **Hansten/Horn Drug Interactions and Updates**).
- 22 Drug-Disease interaction Drug prescribed causes adverse effect on disease, or disease causes ineffective or adverse effect of drug (e.g. A beta-agonist is prescribed for an asthmatic patient).
- 23 Drug Allergy / intolerance Patient allergic to **drug** prescribed or has intolerance to the drug that will cause non-compliance of drug therapy. (e.g. Patient prescribed a sulfonamide antibiotic when allergic to sulfa).

- 24 Drug-Food interaction Drug prescribed has adverse interaction with food prescribed for patient_ (e.g. Patient taking a calcium supplement is prescribed a tetracycline drug).
- 25 Drug-Lab test interaction Drug prescribed known to interact with a home or office lab test (e.g. Patient prescribed a salicylate drug which may cause false-positive glucosuria when using a copper reduction method to test urine glucose).
- 26 ADR:Preventable Drug prescribed is known or suspected to cause an adverse drug reaction (ADR) for the patient. (e.g. Patient reports to pharmacist previous hospitalization due to reaction to penicillin and is prescribed penicillin).
- 27 ADR:Observed Pharmacist observes or suspects the patient is experiencing an adverse drug reaction (ADR). (e.g. Patient taking a tricyclic antidepressant and pharmacist observes 'pill rolling' action, nervous feet and /or hip motion which are extra-pyramidal symptoms, ADR's, of the drug)
- 28 Drug: Complex administration Drug prescribed has complex usage instructions or administration procedure requiring additional patient education for appropriate use. (e.g. Use of **Imitrex[®]**, technique for giving insulin injections, proper use of metered dose inhaler).
- 29 Drug: Other specific problem Use for any drug problems not previously described and not specifically excluded as noted in the documentation procedure instructions. (e.g. Activities that should NOT be documented include missing information on a prescription, forged prescriptions).

Patient-Specific Problems:

- 31 Patient Over-utilization of drug Patient over-compliance with drug therapy. (e.g. Early refill as determined by records of directions and quantity dispensed when prescription was last dispensed, and calculation made by the pharmacist to determine when the patient should need more medication to control health problem).
- 32 Patient Under-utilization of drug Patient under-compliance with drug therapy. (e.g. Late refill as determined by records of directions and quantity dispensed when prescription was last dispensed, and calculation made by the pharmacist to determine when the patient should need more medication to control health problem).
- 33 Patient Communication difficulty Patient who has difficulty comprehending instructions for taking drug therapy. (e.g. English is not the native language, deaf, mental impairment).
- 34 Patient Case managed Patient (case) is referred to a pharmacy by a physician or the Medical Assistance Administration (Medicaid) for management of the patient's drug therapy through a customized care program developed between the pharmacy and the provider or Medicaid (e.g. A patient who has a history of drug abuse whom a prescriber or Medicaid makes an agreement with a pharmacy to monitor the patient's drug use). This **does NOT include patients who are restricted to a pharmacy by Medicaid. Also, this is NOT the same as a managed care patient).**

35 Patient: Other improper use of drug Inappropriate use of a drug other than over or under utilization of a drug. (**e.g. Applying a nitroglycerin patch** at night instead of during the day which can cause the patient to receive a sub-therapeutic dose of the drug).

Patient Seeking Care:

41 Patient Seeking care: with symptoms Patient-seeking advice and care for specific symptoms related to drug therapy or for which drug therapy is likely to be needed (**e.g.** A patient requests advice about stomach pain, earache, rash).

42 Patient Seeking care: NO symptoms Patient seeking advice and care to maintain health; has no disease symptoms. (e.g. A patient requests advice that will promote health or prevent disease).

90 Other Non-drug problems Use for other NON-drug related problems that require the pharmacist's cognitive services. (**Any non-drug related problem that does NOT include problem category 42).**

INTERVENTION

10 Consult prescriber phone or fax Prescriber contacted by phone or fax by the pharmacist to obtain information, to resolve a drug therapy problem or to make an appointment or referral for a patient

11 Consult prescriber in-person Prescriber contacted in-person by the pharmacist to obtain information, to resolve a drug therapy problem or to make an appointment or referral for a patient

20 Consult **R.Ph.** at another pharmacy Pharmacist detecting a drug therapy related problem consults a pharmacist from another pharmacy about the patient's drug-related problem

30 Consult patient Patient interviewed to obtain more information about disease, drugs currently taken, or problem detected as it relates to drug therapy.

31 Patient Assessment Pharmacist assesses patient regarding health condition as it related to the patient's drug therapy through interview and /or reviewing routine vital signs. (e.g. An assessment of anti-hypertensive drug therapy by taking the patient's blood pressure).

32 Patient Training Training and education for the patient beyond routine counseling laws. (**e.g.** extended training or education provided so the patient appropriately uses or monitors drug therapy or disease).

40 Consult Medicaid Medicaid (third party **payor**) consulted regarding an agreement to provide case management for a patient **This does NOT include patients restricted to a specific pharmacy by Medicaid_ Also, this does NOT include any contact with Medicaid regarding drugs on the prior authorization list).**

50 Review Profile or chart Patient profile or chart **reviewed** to obtain information about patient's disease, current and previous drug therapy, allergies, lab values, or any other information pertinent to the drug therapy problem identified.

- 51 Review Laboratory tests Obtain and review laboratory tests or monitoring tests to assess the patient's disease and drug levels in bodily fluids that relate to drug therapy. (e.g. Use of blood glucose monitors, cholesterol screening, obtaining laboratory blood chemistries, cell counts, drug levels in lab blood draws, urine, tissue, culture and sensitivity tests).
- 60 Review Literature Consult literature and /or drug information sources to evaluate regarding drug therapy problem presented. (e.g. Consult Facts and Comparisons to verify drug-lab test interaction).
- 80 Other Indicate for any intervention not previously described and related to drug therapy.

RESULT

- 01 Change to drug of choice Drug changed-and dispensed with prescriber's authorization. (**e.g.** Drug changed to one determined to be more appropriate for the patient's conditions).
- 02 Add Rx drug therapy A legend or non-legend drug is prescribed by an authorized prescriber and added to the patient's therapy. (**e.g.** As a result of insufficient drug therapy for the patient's condition).
- 03 Substitution: Generic A generic drug substituted for a brand name drug with prescriber authorization. This outcome **is Not** to be used if the prescriber has already signed on the substitution permitted line; use only if prescription is signed "dispense as written" (e.g. To reduce cost to **patient/payor** or to comply with third party formulary restrictions).
- 04 Substitution: Therapeutic A therapeutically equivalent drug dispensed with prescriber authorization. (e.g. An alternative cephalosporin is dispensed that is therapeutically equivalent to the cephalosporin that was originally prescribed).
- 05 Add OTC drug therapy Pharmacist recommends OTC drug therapy for the patient based upon the symptoms and problem presented. (**Indicate only for OTC drugs NOT covered as a drug benefit through Medicaid when prescribed by a physician**).
- 11 Change Dose Drug dose changed with prescriber authorization due to inappropriate or incorrect dose **prescribed**. (**e.g.** Original dose was too low to obtain desired therapeutic effect so was increased to achieve appropriate drug therapy).
- 12 Change Dosage regimen Dosage regimen changed with prescriber authorization due to inappropriate or incorrect dosage regimen prescribed (**e.g.** Drug dose changed from twice daily to three times daily to achieve appropriate therapeutic effect).
- 21 Discontinue Drug A drug currently taken by the patient is discontinued with prescriber authorization. (**e.g.** Pharmacist identifies that patient currently is taking an H-2 antagonist and is prescribed a second H-2 antagonist so discontinues previous drug with prescriber's authorization).

22 DO NOT dispense

Drug prescribed is not dispensed upon contact with prescriber and authorized (e.g. Pharmacist identifies that patient began taking a broad spectrum **antibiotic** two days ago and is prescribed a second antibiotic; upon consulting with the physician, it is determined the second antibiotic is unnecessary so it is not dispensed).

30 Counsel patient

Extended patient counseling provided due to a patient's **drug**-related problem. (e.g. The pharmacist determines this is needed to assure patient understanding and compliance over and above counseling required by law).

40 Referral

Referral of a patient to a provider is a means by which responsibility of care is transferred from one authorized provider to another with each being aware of the transfer. A **referral** involves pharmacist recommending the patient contact a provider, obtaining **patient** agreement, and notifying the provider that the referral has been made. (e.g. This includes referral to a health care provider for language translation to assure patient understanding of use and purpose of medication or device for drug therapy). This does not **include a verbal referral only, which is considered patient counseling.**

90 Dispense As
Written

Drug dispensed as written. (e.g. The prescriber does not authorize a change in drug therapy when contacted about a drug problem, or upon contact with the prescriber a potential drug therapy problem is ruled out).

RISK OF MORBIDITY /ILLNESS

- Low. The problem was of minor significance and otherwise would cause the patient inconvenience at the most (This includes no risk of morbidity).
(e.g. A suboptimal drug problem where the drug prescribed was broader spectrum than necessary for the patient's condition, but would not have harmed the patient In such a case, the pharmacist could intervene to have the drug changed to a narrower spectrum and less expensive drug Another example would include dispensing a non-steroidal anti-inflammatory, NSAID, drug to be taken with food that may still cause stomach upset and cause the patient to seek self-care by purchasing and taking an antacid in addition to the medication and food to continue **compliance**. In this example, the pharmacist could intervene to have the drug changed to an alternative NSAID that causes less stomach upset and improve the likelihood of compliance).
- Moderate The problem was of moderate significance and the intervention is likely to save the patient a routine or urgent physician office visit for assessment and treatment.
(e.g. a suboptimal duration of use of an antibiotic may cause the patient to return to the physician with continuation or exacerbation of the health condition that requires repeating the same or a different drug for a longer duration of treatment In this case, a pharmacist could intervene to assure the duration of use was sufficient to treat the health problem Another example is an observed adverse drug reaction that requires the patient to see a physician immediately due to the severe nature of the adverse reaction, such as fainting or shortness of breath. In this case, if the pharmacist observed the adverse reaction, the physician could have been consulted and the therapy modified as authorized by the prescriber.
- High The problem was of major significance and the intervention is **likely** to save the patient an emergency room visit or hospitalization for assessment and treatment.
(e.g. a drug-drug interaction that could result in inhibition of a maintenance seizure drug which could lead to the patient experiencing a seizure which may cause the patient to be taken to a hospital emergency room or admitted to a hospital In this case, the pharmacist could identify and assess the potential for such an interaction and contact the physician for appropriate alteration in drug therapy. A second example is a drug with complex administration requirements. If the drug requires the use of a metered dose inhaler, MDI, and the patient does not know how to properly use the MDI, there is the potential for severe bronchial constriction to occur which could require an emergency room visit or hospitalization_ In this, example, extra time assuring the patient is able to properly use and demonstrate to the pharmacist how to use the **MDI** would avoid an emergency of this nature.

Documentation Process

As a component of pharmaceutical care, cognitive services are those services provided by the pharmacist for a patient or health care professional that are either judgmental or educational in nature rather than technical or informational. Cognitive services may be related either to the actual dispensing of a prescription or to other aspects of patient care such as over-the-counter medication counseling or providing education to the physician in an area of therapeutics. Cognitive services can improve the level of care provided to the patient, decrease the likelihood of the patient experiencing an adverse drug reaction, drug interaction or therapeutic failure, and assist in decreasing medication costs and /or potential health care costs.

For this study, we are primarily interested in documenting pharmacists' cognitive services that are directly related to a patient's drug therapy. This **includes services** performed to resolve a drug therapy problem, change, implement or discontinue drug therapy, or cognitive services provided that result in dispensing a prescription. To make the documentation form more universally applicable, there are some problem categories not necessarily related to drug therapy, such as a patient who is seeking care (health promotion) that does not have any disease symptoms. Most of the specific problem, intervention, and result combinations that are **logical will** be reimbursed, but some limitations exist. There are some combinations of problem, intervention, and result that are not reimbursable. (See Cognitive Services Payment Rules, page 28)

Drug therapy related cognitive services provided by pharmacists can be viewed as being supplemental to traditional dispensing-related functions. We are asking you to document cognitive services that go beyond minimum dispensing tasks. Please document each problem you encounter using the Problem-Intervention-Result format explained below. Use ONE documentation form for EACH problem.

The following is a detailed description of how to document the cognitive services you provide for this study. All of the steps described pertain to both the paper documentation procedure and the full screen computerized documentation program. The computerized pop-up screen for documentation allows omission of a few of the steps and are noted where applicable.

Cognitive Services to be Documented

The paper and computerized documentation forms were designed to assist you in documenting the cognitive services you provide. To document these cognitive services, the following information will be needed:

1. your site ID (which is the first six digits of your NABP #)
2. the date on which the cognitive service was provided
3. the RX number (See note below about the RX number to be used)
4. your initials
5. the total TIME (to the nearest minute) **that you** spent identifying and correcting the problem. **This is to be measured as actual time spent**, not time elapsed until the problem is resolved.

6. the drug NDC # and QUANTITY of both the original RX and the dispensed RX
7. the type of DRUG THERAPY PROBLEM you have identified
8. the type of INTERVENTION you performed in investigating and resolving the problem
9. the RESULT of the intervention
10. your judgment of the RISK OF MORBIDITY the problem presented to the patient

NOTE REGARDING RX NUMBER: If you DO NOT dispense a drug as a result of your cognitive service (e.g. the result of your cognitive service is 'Do Not Dispense' or 'Referral'):

- * If your pharmacy is in Group A. (the group of pharmacies that both document AND bill Medicaid for each cognitive service provided) you should enter the RX number created to bill your cognitive service. (See Method for Creating a Cognitive Service Prescription, page and Billing DSHS for this Cognitive Service Prescription, page , for complete information about creating a record of the cognitive service provided and assigning a prescription number to it)
- * If your pharmacy is in Group B. (the group of pharmacies that only documents each cognitive service provided) you should leave the field for the RX number blank when documenting your service.

Documentation Procedure

You should place a "1" next to the primary problem, intervention and result that you identify. Only one primary problem, intervention and result can be accepted. However, additional interventions or results related to the primary problem should be marked with a "Y".

If you identify more than one (1) problem for a particular patient or prescription which requires intervention, record each additional problem, its intervention(s) and result(s) using a separate Cognitive Services Documentation Form.

POP-UP SCREEN COMPUTERIZED DOCUMENTATION EXCEPTION:

The pop-up computerized documentation program will only allow you to enter the primary problem, intervention and result. This program allows you to scroll through the problem, intervention and result options by using the arrow keys and pressing <ENTER> for the to document the cognitive service. Additional information about interventions or results can not be documented.

I. Documenting Problems

The following is a list of problems which may be related to a patient's drug therapy or other patient specific problem. You should indicate the primary problem you have identified by marking a "1" next to that problem for the paper or full screen computerized documentation programs. For the pop-up screen computerized program, scroll through the list of problems and press <ENTER> for the primary problem. (**Please** refer to the Problem section of the **Definitions for Cognitive Service Elements, page 6**, for detailed definitions and examples of the problem categories listed below.)

- Problem
- Suboptimal drug .
 - Suboptimal dose
 - Suboptimal dosage regimen
 - Suboptimal dosage form
 - Suboptimal duration of use
 - Suboptimal: Unnecessary drug therapy
 - Drug: Therapeutic duplication
 - Drug-Drug interaction
 - Drug-Disease interaction
 - Drug Allergy/intolerance
 - Drug-Food interaction
 - Drug-Lab test interaction
 - ADR: Preventable
 - ADR: Observed
 - Drug: Complex administration
 - Drug: Other specific problem
 - Patient Over-utilization of drug
 - Patient Under-utilization of drug
 - Patient Communication difficulty
 - Patient Case managed
 - Patient: Other improper use of drug
 - Patient Seeking care: with symptoms
 - Patient Seeking care: NO symptoms
 - Other Non-drug problems

II. Documenting Interventions

Next, indicate the primary intervention or activity which is required to correct or address the Problem you have identified. Indicate the primary intervention you have identified by marking a "1" next to that intervention for the paper or full screen computerized documentation programs. For the pop-up screen computerized program, scroll through the list of interventions and press <ENTER> for the primary intervention. (**Please** refer to the Intervention section of the **Definitions for Cognitive Service Elements, page 8**, **for detailed** definitions and examples of the intervention categories listed below.)

Intervention

- Consult Prescriber by phone/fax
- Consult Prescriber in person
- Consult **R.Ph.** at another pharmacy
- Consult Patient
- Patient Assessment
- Patient Training
- Consult Medicaid
- Review Profile or chart
- Review Laboratory tests
- Review Literature
- Other

III. Documenting Results

Following your intervention, identify the primary result associated with the problem and intervention that you identified. Indicate the primary result you have identified by marking a "1" next to that result for the 'paper or full screen computerized documentation programs. For the **pop-up** screen computerized program, scroll through the list of results and press <ENTER> for the primary problem (**Please refer to the Result section of the "Definitions for Cognitive Service Elements, page 9, for detailed definitions and examples of the result categories listed below.)**)

Result

- Change to drug of choice
- Add Rx drug therapy
- Substitution: Generic
- Substitution: Therapeutic
- Add OTC drug therapy
- Change Dose
- Change Dosage regimen
- Discontinue Drug
- Do NOT dispense
- Counsel patient
- R e f e r r a l
- Dispense As Written

IV. Documenting Morbidity Risk

Morbidity risk refers to your assessment of the risk of an adverse health outcome that you predict the patient might have experienced had you not corrected the problem through your cognitive service. (**Please refer to the Morbidity Risk section of the "Definitions for Cognitive Service Elements", page 11, for detailed definitions and examples of morbidity risk).** You are asked to predict the morbidity risk using the following ranges:

- Low = The problem was of minor significance and otherwise would cause the patient inconvenience at most. (This includes no risk of morbidity).
- Moderate = The problem was of moderate significance and the intervention is likely to save the patient a routine or urgent physician office visit for assessment and treatment
- High = The problem was of major significance and the intervention is **likely** to save the patient an emergency room visit or hospitalization for assessment and treatment

V. What NOT to Document

Pharmacists provide many valuable services that require them to use their cognitive skills. This study has restricted the documentation of cognitive services to the problems, interventions and results identified above. Although the following services have value, they are **NOT to be documented for the purposes of this study.** These services include:

- Providing **routine patient counseling required** by Washington state law
- Obtaining **missing information on a prescription**
- Dealing with **forged prescriptions**
- Providing general drug information for a prescriber that is not related to a specific patient and a specific result as sought in this study.

The Pharmacist A.R.E. Project

Submission of Documented Cognitive Services to the University of Washington

Study Period and Submission of Documented Cognitive Services

Documentation of cognitive services provided for Medicaid patients is anticipated to begin in February 1994 and will continue for 12 months. Pharmacists will be asked to submit their documentation to the University of Washington School of Pharmacy at least once each month for evaluation. This can be done by either:

1. Mailing the original copy of the paper form in the postage paid envelopes provided
2. Copying the documentation from one of the computerized programs onto a computer diskette and mailing the diskette in the prepaid envelope provided. (Instructions for this process are included **with** both computer programs).

Pharmacists can begin practicing documentation of their cognitive services as soon as they have received the initial training program. All participants will be asked to document their cognitive services approximately 30 days before the official start of the study to assure experience with the documentation process. The University of Washington **will** request documentation completed during this practice period to be submitted **WEEKLY** so it can be reviewed **for** completeness and accuracy. Pharmacists will receive timely feedback regarding their documentation. This period will allow time to assure that documentation is proceeding appropriately and to **identify any** inconsistencies or problems that can then be resolved before the **official** start of the study. **There** is no stipend available for this practice period of the study.

Pharmacists will be notified immediately prior to the official start of the study which group they have been randomly assigned to. These groups are:

- * Group A: both documents their cognitive services **and** submits a cognitive service bill to DSHS through customary DSHS billing processes
- * Group B: documents their cognitive services only.

The Pharmacist A.R.E. Project

Computerized Documentation Installation Instructions for **The Full Screen** Computerized Documentation Program (This program was created by Bob Stotler)

Welcome to your cognitive services documentation processors.

Please use these processors to collect intervention data for use as input to a spreadsheet or database management program that will be used in the Washington Pharmacist CARE Project. (See INTERVEN.FMT for record layout). The information you document about your cognitive services for Medicaid patients will be evaluated by the University of Washington School of Pharmacy through a cooperative agreement funded by the Health Care Financing Administration.

IMPORTANT INFORMATION about installing full screen documentation programs:

If you're not sure how to determine if your computer meets the needs identified in numbers 1 through 4 below or have questions about installation or operation of this computerized documentation program, please call Bob Stotler for assistance at (206) 365-8630 or call the toll free number: 1-800-801-9076.

1. The operating system must be MS-DOS version 3.1 (or later) or PC-DOS version 3.x (or later).
2. There must be at least 420K of RAM available **after** DOS, Network, or other shell(s), Terminate and Stay Resident programs (TSR's) etc have been loaded
3. Be sure the path goes through the directory containing DOS (probably in the AUTOEXEC.BAT file). **e.g.** The following line should be in your AUTOEXEC.BAT **file:**
 PATH = C: \;C:\DOS
4. Be sure the CONFIG.SYS file contains statements that say, at least:
 FILES = 50
 BUFFERS = 55

INSTALLATION PROCEDURE FOR THE FULL SCREEN PROGRAM:

(Created by Bob Stotler)

To install these processors as well as the Material Safety Data Sheet processors and the Hot Line Alert processors:

1. Determine which drive on your computer has enough memory (approximately 2 MB). From the D.OS prompt, go to that drive. **e.g.:** C: or **e.g.** D:

Make a directory named INTERVEN by typing: MD. **\INTERVEN**

Next, go to that directory by typing: CD **\INTERVEN**

2. To copy the processors from the floppy disk to the hard disk on your computer, determine the size of the floppy disk you use to install computer programs.

Insert either the 3-1 /2 inch floppy disk or the 5-1 /4 inch floppy disk, insert the disk and type the following:

X:PKUNZIP X:PCP (where X = the floppy drive, either A or B).

7. For ease of use by the participating pharmacy, locate the **PCPxxxxx.BAT** on the Root (\) directory.

8. Edit the **PCPxxxxx.BAT** to change to the applicable drive before changing to the **\INTERVEN** directory (line 2 of this .BAT file) and changes back to the appropriate drive and directory before restarting the Pharmacy application (lines 7 through 9 of this .BAT file). You may also want to rename the **PCPxxxxx.BAT** file.

WINDOW USERS' NOTE:

If your pharmacy computer system is operating under Windows, steps 7 and 8 are NOT needed You can merely put an icon (and the accompanying options) in one of the windows.

OPERATING YOUR FULL SCREEN COMPUTERIZED DOCUMENTATION PROGRAM;
(Created by Bob Stotler)

To execute the processors, at the DOS prompt merely type INTERVEN. Make selections from the 'Main' Menu that appears by typing the letter associated with your selection or by moving the highlighted bar to the selection using the up and down arrow keys, and then pressing the ENTER key. From the 'Main' Menu you can access the program to document the problem, intervention, and result information needed for this study. Be sure to use the 'intervention' **file** for the purposes of this study only.

On the screen where you record intervention activities for the Pharmacist CARE Project, there is a separate 'help' screen for each and every field on the screen. With the cursor at the field in question, press the F1 key for an explanation of that field and what the acceptable responses are for it (e.g. enter a '1' only once among the problem types.) If there is more than one problem associated with a prescription or patient's drug therapy, document each problem on a separate screen using the same RX number associated with the problem(s). If the problem identified prompts multiple interventions and /or results, decide which intervention and result is primary or most significant and indicate 'this with a '1' in the appropriate field. Indicate any less significant interventions and /or results with a 'y'. The system will create the appropriate record(s) for further analysis

The 'Main' Menu also gives you a 'Rolodex-type' name and address file and a calendar file in which you can record messages for any time, day or month from the year 1901 to infinity. You can also **list** and view these messages. Feel free to use the name and address file and the calendar file in any way you see fit. The number of entries in these files is, **virtually**, unlimited

There is a separate menu that gives you a method of recording 'Hot Line Alert' information and validating a doctor's DEA number. Since date is a 'search' field in this file, you may want to ask any employee returning to work after time off to review this file in search of any 'alerts' that have been entered since the employee last worked (See explanation below about undocumented features for information about the 'search' field.)

Another menu gives you the tools with which to record, track, view and or print 'Material Safety Data Sheets' for the end-user's benefit. For instance, if you buy **Hibiclens** anti-bacterial soap by Stewart in bulk and sell it to one of your doctors who, in turn, gives (sells) it to his or her patients in smaller quantities, you want to provide material safety information for this product. Normally, you'll only get one copy of the Material Safety Data Sheet from the manufacturer. These processors will allow you to update your data base and print as many copies of the Data Sheets as you (or the doctor) may require.

At the bottom of most screens you should find references to the use of function keys to do such things as Add, File, Save, Delete, Search, etc. Also, most screens have some form of 'help' associated with them. On all programs except the Material Safety Data Sheets, you can get on-screen help by pressing the **F1** key. The bottom of the screen will tell you whether or not help is available for that particular screen. (For the Material Safety Data Sheets, the 'help' screen can be accessed by pressing the **F10** key.)

There are two undocumented features available to you when entering or editing information. They are:

1. Any field that is followed by a '<' indicates that it is a 'key' field and can be searched by advancing the cursor to it, typing a portion of the field, and then pressing **F9** to search, F5 for the first entry in the file, F8 for the next, etc.
2. You can clear a field by holding down the 'CTRL' key and pressing the 'U' key.

NOTE: Once you have installed the processors on your system, you can view /print this document as well as others by typing (from the DOS prompt) INTRO. e.g.: C:>INTRO (then press the <ENTER> key).

Good luck and thank you for your help with this project!

The Pharmacist A.R.E. Project

Steps for Documenting with the Full Screen Computerized Documentation Program (Created by Bob Stotler)

After dispensing the prescription and completing the cognitive service that is to be documented, access the documentation program through the menu or at the C prompt type: PCP

Use the up and down arrow keys to enter information on the screen.

1. Enter the Rx # (if filled), date and **R.Ph.** initials.
2. Enter the actual time spent, in minutes, completing the cognitive service (Not elapsed time)
3. Indicate your assessment of the risk of morbidity to the patient if you had not provided the **cognitive** service you are documenting
4. Enter the drug NDC number and quantity of the original drug prescribed (if an original prescription existed)
5. Enter **the** drug NDC number and quantity of the drug dispensed (if one was dispensed)
6. Place a '1' in each category for **the** PRIMARY problem; you may then, enter a 'y' for additional interventions or results that relate to the **cognitive** service provided. **DO NOT ENTER ANY y's IN THE PROBLEM CATEGORY.**
7. You may use the 'Comments' field to clarify or further explain any information about the cognitive service you provided whenever you deem it necessary.
8. Press <Enter> to save your documentation or <Esc> to quit without documenting the cognitive service.

After you enter this information, a cognitive service code beginning with **88888-** will appear in the lower right-hand corner.

IMPORTANT NOTE:

IF you are in Group A: that bills Medicaid for your cognitive services, you will need the number created on your screen for billing. You should record the cognitive service code that appears in the lower right-hand corner of the screen before proceeding with the creation of a Medicaid cognitive service prescription and billing Medicaid for this service. (See **Method for Creating a Cognitive Service Prescription, page 26, and Method for Billing DSHS for a Cognitive Service Prescription, page 27.**)

9. **Access the pharmacy** system for processing prescriptions through the menu

Full Screen Computerized Documentation Program.
(Created by Bob Stotler)

Cognitive Services Documentation

Rx #: < Date: 102893 R.Ph.: **ZZZ** Minutes: Morbidity Risk: 1

<<=====Original=====>> <<=====Dispensed=====>>

NDC:	Qty:	Days:	NDC:	Qty:	Days:	
PROBLEM TYPE		suboptimal drug:		Suboptimal Dose:		PROB
Suboptimal Regimen:		Suboptimal Form:		Suboptimal Duration:		P
Unnecessary Drug:		Ther. Duplication:		Drug-2-Drug:		P
Drug-2-Disease:		Drug Allergy:		Drug-2-Food:		P
Drug-2-Lab:		Adv. React Prevent'bl:		Adv. React Seen:		P
Complex Administr'n:		Other Drug Problem:		Over-Utilization:		P
Under-Utilization:		Communication Probl:		Case Managed:		P
Other, Wrong Drug Use:		Seek Care(Symptoms):		Seek Care(No Sympt's):		P
Other Non Drug Prob:						P
INTERVENTION ACTION		Consult HD(Phone):		Consult MD(Personal):		INTV
Consult other Phcy:		Consult Patient:		Patient Assessment:		I
Patient Training:		Consult 3rd Pty Prog:		Review Chart:		I
Review Lab Tests:		Review Literature:		Other:		I
OUTCOHE TYPE		Change Drug:		Add Rx Drug:		OUTC
Generic Sub:		Therapeutic Sub:		Add OTC Drug:		0
Change Dose:		'Change Dosage Reg:		D/C Drug:		0
Do Not Dispense:		Counsel Patient:		Referral:		0
Dispense As Written:						0

COMMENTS:

F1-Help, F3-Add, F4-Del, F5-1st, F6-Last, F7-Prev, F8-Next, F9-Srch, F10-Save

The Pharmacist A.R.E. Project

Computerized Documentation Installation instructions for the Pop-Up Computerized Documentation Program (This program was created by Ralph Lloyd)

Please use this **program to collect intervention** data that will be used in the Washington Pharmacist Cognitive Services Study. The information you document about your cognitive services for Medicaid patients will be evaluated by the University of Washington School of Pharmacy through a cooperative agreement funded by the Health Care Financing Administration

INSTALLATION PROCEDURE:

The computer diskette for this program contains four files:

**POPCAP.EXE
POPCAP.TXT
COGSER.EXE
C O G S E R S C N**

These programs should, be copied to the same directory as your PHARMACY SYSTEM PROGRAMS AND DATA FILES. If they do not exist in the root directory, use the CD command to change to the proper directory. Then at the DOS prompt type:

Copy A:*. * <Enter>

Next, find the batch file used to run the PRESCRIPTION PROCESSING PROGRAM. Insert the command **POPCAP** in the batch file prior to the command to execute the PRESCRIPTION PROCESSING PROGRAM.

Now, add to your menu system a selection for Extracting the cognitive service claims This selection will **run the** COGSEREXE program.

Pop-Up Screen Computerized **Documentation Program**
(Created by Ralph Lloyd)

	Hedicafd intervention
Rx #:	Problem Type:01 SUBOPTIMAL: Drug
Orig.NDC#:	Interven.Type:10 CONSULT: Prescriber phone/fax
Orig.Quan:	Outcome Type:01 CHANGE: To drug of choice
Disp.NDC#:	Morbidity Risk:1 LOW
Disp.Quan:	Est.Time(min):
	RPh Initials:

Steps for Documenting with the **Pop-Up** Computerized Documentation Program
(Created by Ralph Lloyd)

After dispensing the prescription and completing the cognitive service that is to be documented, initiate the program at the C prompt by typing: **POPCAP**. Then you can access the documentation program at any time within your pharmacy software system by pressing the **<Alt> + <~ >** keys simultaneously.

Use the up and down arrow keys to move to different fields of the program.

1. Enter the Rx # (if filled)
2. Enter the drug NDC number and quantity of the original drug prescribed (if an original prescription existed)
3. Enter the drug NDC number and quantity of the drug dispensed (if one was dispensed)
4. Use the up and down arrow keys to scroll within the Problem, Intervention, Outcome and Morbidity fields. When you have scrolled to the primary problem, press **<Enter>** to record it. Proceed to the Intervention, Result and Morbidity fields and repeat this process to document your cognitive service.
5. Enter the actual time spent, in minutes, completing the cognitive service (Not elapsed time)
6. Enter the R.Ph initials
7. Press **<Enter>** to save your documentation or **<Esc>** to quit without documenting the cognitive service. You will resume your pharmacy program execution at the place before you pressed **<Alt> + <~ >** after you save or quit the documentation program.

IMPORTANT NOTE:

IF you are in Group A: that bills Medicaid **for** your cognitive services, you will need to note the two digit code to the right of the scrolling choices for problem, intervention and result. These six digits will be used for the last six digits of the cognitive service code that is preceded by 88888. **BEFORE YOU SAVE YOUR DOCUMENTATION AND RESUME YOUR PHARMACY SYSTEM**, you must record this cognitive service code. Then you can save your documentation and proceed with the creation of a Medicaid cognitive service prescription and billing Medicaid for this service. (See Method for Creating a Cognitive Service Prescription, page 26, and **Method for Billing DSHS** for a Cognitive Service Prescription, page 27.)

Pharmacy Participation Stipend

This study of the provision of pharmacists' cognitive services and payment for these services in Washington state will involve 200 community pharmacies that have agreed to document their cognitive services for 12 months. A participation agreement must be signed between the pharmacy and the Department of Social and Health Services, DSHS, to receive payment for documenting cognitive services.

Study Participation Stipend for Documentation

All 200 pharmacies participating in the study will receive a stipend of \$40.00 per month for documenting their cognitive services. DSHS will provide participation vouchers that indicate the pharmacy did document cognitive services that were provided for Medicaid patients during the previous month. All pharmacies will be supplied with these vouchers. To receive the monthly payment, the voucher must be signed and dated at the end of each month and mailed to DSHS. The \$40.00 stipend will be mailed to the pharmacy within 2 weeks of receipt of the voucher. **All information** documented about cognitive services is to be sent to the University of Washington for analysis. **The identity of pharmacies and information submitted to the University of Washington School of Pharmacy will be kept confidential.**

IMPORTANT NOTE:

For this study, it is important to accurately record the DAYS SUPPLY of the drug and the PRESCRIBER'S DSHS NUMBER when filling Medicaid drug prescriptions. We are aware of the difficulties encountered in obtaining the prescriber's DSHS number, but request that you make every effort to get these numbers. The University of Washington will also try to obtain DSHS numbers for prescribers to distribute to participating pharmacies.

The Pharmacist A.R.E. Project

Method for Creating a Cognitive Service Prescription (For pharmacists in Group A Only)

One of the **objectives** of this project is to study the effect of payment on pharmacists' performance of cognitive services. Therefore, half of the **pharmacies in the study (Group A)** will be randomly selected to receive reimbursement from **Medicaid** for **specific cognitive** services that are documented and billed to Medicaid. To receive this reimbursement, the pharmacist must create a cognitive service prescription to be used to bill DSHS.

Steps for Creating a Cognitive Service Prescription:

1. Using a blank prescription form, record the patient's name
2. Record the date the cognitive service was provided
3. Record the cognitive service code (The code obtained as a result of documenting the cognitive service provided **e.g. 88888-01-10-02**).
4. Record the pharmacist's initials

You have now created a hard copy cognitive service prescription! This prescription will have a unique prescription number assigned to it and will become a permanent record in the patient's profile for future reference. Instructions for assigning a prescription number to this cognitive service prescription and recording it in the patient's profile are given on the next page which includes the steps for billing DSHS for your documented cognitive services

IMPORTANT NOTE:

For this study, it is important to accurately record the DAYS SUPPLY of the drug and the PRESCRIBER'S DSHS NUMBER when filling Medicaid drug prescriptions. We are aware of the difficulties encountered in obtaining the prescriber's DSHS number, but request that you make every effort to get these numbers. The University of Washington will also try to obtain DSHS numbers for prescribers to distribute to participating pharmacies.

The Pharmacist A.R.E. Project

Method for Billing DSHS for a Cognitive Service Prescription (For pharmacists **in** Group A Only)

To bill DSHS for your documented cognitive service, you will need to use the cognitive service prescription you created as described on the previous page. To assign a prescription number to it, access the patient's profile and process this prescription as you would any other Medicaid drug prescription with the following exceptions:

When Submitting a Cognitive Service Claim **to** Bill DSHS (Group A pharmacies only)

1. A unique Cognitive Services Code must be entered into the National Drug Code field. It has the following general **format**:

88888-PP-II-RR, where:

- 88888 - labels the claim as a cognitive services claim.
- PP - two digit problem code (*use appropriate numeric code from the cognitive service prescription; e.g. 01 which identifies a suboptimal drug problem*).
- II - two digit intervention code (*use appropriate numeric code from the cognitive service prescription; e.g. 10 which indicates the pharmacist contacted the prescriber by phone or fax*).
- RR - two digit result code (*use the appropriate numeric code from the cognitive service prescription; e.g. 02 which indicates Rx drug therapy was added*).

From this example, the Cognitive Service Code to be entered into the National Drug Code field is: 88888011002

2. In the quantity field, record the actual time in **minutes** (not elapsed time) to conduct the cognitive service activity to the nearest **minute**. This field will be used to determine the level of reimbursement; which is \$4.00 if the time is six minutes or less, or \$6.00 if the recorded time is more than six minutes.
3. DSHS will NOT DEDUCT ANY CO-PAYMENT for cognitive service claims identified by a code starting with 88888.
4. For cognitive **service claims**, leave the co-payment code (E, U, P, B, etc.) field BLANK. If your computer system requires a co-payment code, enter a 'U'.
5. Submit the cognitive service prescription (which now has an Rx number assigned to it) as you would any other Medicaid drug prescription.
6. Before payment, DSHS will review claims for completeness of all fields, patient eligibility, payable cognitive service codes, pharmacy and time (minutes) recorded in the quantity field. As with any other claim, cognitive service claims are subject to DSHS audit.

Your cognitive service reimbursement will be received from DSHS along with your **monthly drug** claim reimbursements and adjudication.

CARE Project
Cognitive services Assessment and Reimbursement Effectiveness

COGNITIVE SERVICES PAYMENT RULES

All drug-related cognitive service interventions are potentially eligible for reimbursement subject to certain rules. Claims for payment must be properly-coded with appropriate Cognitive Service codes indicating the specific PROBLEM, INTERVENTION, and RESULT, and the time involved. recorded in the Quantity field. The level of payment is determined by the time involved. The following combination of codes are eligible:

Problem:	any
Intervention:	any
Result:	Any code signifying a change in drug therapy [01-04,11,12,21,22] except 'Add OTC drug' [05]

Problem:	Patient Overutiliz (31), Underutiliz (32) or Communication Difficulty (33)
Intervention:	any
Result:	Counsel Patient (30)
Time involved:	> 6 minutes

Problem :	Case Managed Patient (34) <i>if referred by DSHS or a physician</i>
Intervention:	any
Result:	'all except Add OTC Drug (05)

Problem:	Complex Drug Admin (28) or Other Drug-Specific Problem (29)
Intervention:	Patient Training (32)
Result:	D.A.W. (90)

Probler:	Communication Difficulty (33)
Intervention:	any
R e s u l t :	Referral (40) <i>be sure to check the working definition of 'referral'</i>

Problem:	Any, except Pt. Seeking Care (41,42), and Other Non-drug Problem (90)
Intervention:	Consult Prescriber (10,11) <i>be sure to check the working definition of 'consult prescriber'</i>
Result:	any

Problem:	Therapeutic Duplication (11), DDI (21), Drug-Dis. interaction (22), Drug-allergy intol. (23), ADR-prev. (26) ADR-obs. (27) Pat. Overutil. (31), Pat. Underutil. (32)
Xntervention:	Consult RPh at another pharmacy (20)
R e s u l t :	Counsel patient (30) or Referral (40)

Problem:	any
Intervention:	Consult Patient (30) or Patient Assessment (31)
Result:	Referral (40)

Cases to Practice Documentation of Cognitive Services

For each of the following cases, review the information provided, identify any actual or potential problems, and decide what you would do to correct the problem. Then, use the paper documentation form provided to document the problem, intervention, and result you have identified. If you have questions as you are working through the cases, please note these in the comment section following each case. In some of the cases, there is more than one correct answer which would depend on the specific circumstances that are not provided. In such cases, indicate the assumption you made about the case and then document what you would have done in the situation presented.

Case 1.

P.C. is a 44 year old patient with insulin-dependent Diabetes Mellitus seeking instruction on the use of an auto-injector for her insulin. She has not previously received training on the use of the auto-injector. Her physician referred her to your pharmacy for training

SITE ID _____ Date _____ Rx # _____ RPh Initials _____ Total Time (Min.) _____

ORIGINAL RX INFORMATION		DISPENSED RX INFORMATION	
NDC#:	QTY:	NDC#:	QTY:

<p>Problem:</p> <p>___ SUBOPTIMAL Drug01</p> <p>___ SUBOPTIMAL Dose 02</p> <p>___ SUBOPTIMAL Dosage regimen 03</p> <p>___ SUBOPTIMAL Dosage form 04</p> <p>___ SUBOPTIMAL Duration of use 05</p> <p>___ SUBOPTIMAL: Unnecessary drug therapy 06</p> <p>___ DRUG: Therapeutic duplication 11</p> <p>___ DRUG-Drug interaction 21</p> <p>___ DRUG-Disease interaction 22</p> <p>___ DRUG-Allergy/intolerance 23</p> <p>___ DRUG-hod interaction 24</p> <p>___ DRUG-Lab test interaction 25</p> <p>___ ADR: Preventable 26</p> <p>___ ADR: Observed 27</p> <p>___ DRUG: Complex administration 28</p> <p>___ DRUG: Other specific problem 29</p> <p>___ PATIENT Over-utilization of drug 31</p> <p>___ PATIENT Under-utilization of drug 32</p> <p>___ PATIENT Communication difficulty 33</p> <p>___ PATIENT Case managed 34</p> <p>___ PATIENT: Other improper use of drug 35</p> <p>___ PATIENT Seeking care: with symptoms 41</p> <p>___ PATIENT Seeking care: NO symptoms 42</p> <p>___ OTHER NON-drug problem 90</p> <p>Third Party Type: <u>001 Medicaid</u></p> <p>WASHINGTON Pharmacist CARE Project Documentation Form</p>	<p>Intervention:</p> <p>___ CONSULT Prescriber phone/fax..10</p> <p>___ CONSULT Prescriber in person..11</p> <p>___ CONSULT RPh at another pharmacy20</p> <p>___ CONSULT Patient.. 30</p> <p>___ PATIENT Assessment..... 31</p> <p>___ PATIENT Training.. 32</p> <p>___ CONSULT Medicaid (3rd Party Payor)..... 40</p> <p>___ REVIEW Profile or chart..... 50</p> <p>___ REVIEW Laboratory tests.....51</p> <p>___ REVIEW Literature..... 60</p> <p>___ OTHER..... 80</p> <p>Result:</p> <p>___ CHANGE To drug of choice.....01</p> <p>___ ADD Rx drug therapy..... 02</p> <p>___ SUBSTITUTION: Generic..... 03</p> <p>___ SUBSTITUTION: Therapeutic.....04</p> <p>___ ADD OTC drug therapy.....05</p> <p>___ CHANGE Dose..... 11</p> <p>___ CHANGE Dosage regimen12</p> <p>___ DISCONTINUE Drug..... 21</p> <p>___ DO NOT dispense:..... 22</p> <p>___ COUNSEL Patient 30</p> <p>___ REFERRAL.....40</p> <p>___ DISPENSE As Written.....90</p> <p>Morbidity Risk: ___ Low(1) ___ Moderate(2) ___ High(3)</p> <p>CS Code [NDC] #: 88888 - _____</p>
--	---

COMMENTS/QUESTIONS/NOTES:

Case 2.

N.K. is a 3 year old female patient weighing 18 kg. who presents with a prescription for Amoxicillin 250mg tid x 4 days for treatment of Otitis Media.

Ernest Ear, M.D.
1234 Canal Drive
Seattle, WA 98107
555-6789

Patient: Nora Ketter Date 10-29-93

Address: I I

Sig: Amoxicillin 250mg tid x 4 days

Substitution Permitted E Ear Dispense as Written

DEA # _____

Refill 0

COMMENTS/QUESTIONS/NOTES:

SITE ID _____ Date _____ Rx # _____ RPh Initials _____ Total Time (Min.) _____

ORIGINAL RX INFORMATION		DISPENSED RX INFORMATION	
NDC#:	QTY:	NDC#:	QTY:

Problem:

___ SUBOPTIMAL Drug 01

___ SUBOPTIMAL Dose 02

___ SUBOPTIMAL Dosage regimen 03

___ SUBOPTIMAL Dosage form 04

___ SUBOPTIMAL Duration of use 05

___ SUBOPTIMAL: Unnecessary drug therapy 06

___ DRUG: Therapeutic duplication 11

___ DRUG-Drug interaction 21

___ DRUG-Disease interaction 22

___ DRUG-Allergy/intolerance 23

___ DRUG-Food interaction 24

___ DRUG-Lab test interaction 25

___ MR: Preventable 26

___ ADR: Observed 27

___ DRUG: Complex administration 28

___ DRUG: Other specific problem 29

___ PATIENT Over-utilization of drug 31

___ PATIENT Under-utilization of drug 32

___ PATIENT Communication difficulty 33

___ PATIENT Case managed 34

___ PATIENT: Other improper use of drug 35

___ PATIENT Seeking care: with symptoms 41

___ PATIENT Seeking care: NO symptoms 42

___ OTHER NON-drug problems 90

Third Party Type: 001 Medicaid

WASHINGTON Pharmacist CARE Project Documentation Form

Intervention:

___ CONSULT Prescriber phone/fax.....10

___ CONSULT Prescriber in person.....11

___ CONSULT RPh at another pharmacy20

___ CONSULT Patient 30

___ PATIENT Assessment..... 31

___ PATIENT Training..... 32

___ CONSULT Medicaid (3rd Party Payor)..... .40

___ REVIEW Profile or chart.....50

___ REVIEW Laboratory tests.....51

___ REVIEW Literature..... 60

___ OTHER..... 80

Result:

___ CHANGE To drug of choice..... .01

___ ADD Rx drug therapy..... .02

___ SUBSTITUTION: Generic..... .03

___ SUBSTITUTION: Therapeutic04

___ ADD OTC drug therapy05

___ CHANGE Dose 11

___ CHANGE Dosage regimen.....12

___ DISCONTINUE Drug 21

___ DO NOT dispense 22

___ COUNSEL Patient 3c

___ REFERRAL..... 4c

___ DISPENSE As Written9c

Morbidity Risk: Low(1) Moderate(2) High(3)

CS Code [NDC] #: 88888 - - - - -

Case 3.

V.G. is an 82 year old male who receives Indomethacin 25mg tid for arthritis from your pharmacy. He presents to you seeking advice for control of a "burning" feeling in his stomach. He is perplexed by the large selection of antacid medications available over the counter and would like you to make a recommendation. This "burning" is a new symptom which he has not had previously. He has not recently changed his diet or added any new medications.

SITE ID _____ Date _____ Rx # _____ RPh Initials _____ Total time (Kin.) _____

ORIGINAL Rx INFORMATION		DISPENSED Rx INFORMATION	
NDC#:	QTY:	NDC#:	QTY:

Problem:	Intervention:
___ SUBOPTIMAL Drug 01	___ CONSULT Prescriber phone/fax10
___ SUBOPTIMAL Dose 02	___ CONSULT Prescriber in person.....11
___ SUBOPTIMAL Dosage regimen 03	___ CONSULT Rph at another phanacy 20
___ SUBOPTIMAL Dosage form 04	___ CONSULT Patient 30
___ SUBOPTIMAL Duration of use.....	___ PATIENT Assessment..... 31
___ SUBOPTIMAL: Unnecessary drug therapy	___ PATIENT Training..... 32
___ DRUG: Therapeutic duplication 11	___ CONSULT Medicaid (3rd Party Payor)..... 40
___ DRUG-Drug interaction 21	___ REVIEW Profile or chart.....50
___ DRCC-Disease interaction 22	___ REVIEW Laboratory tests51
___ DRUG-Allergy/intolerance 23	___ REVIEW Literature 60
___ DRUG-Food interaction 24	___ OTHER 80
___ DRUG-Lab test interaction 25	
___ ADR: Preventable 26	Result:
___ ADR: Observed 21	___ CHANGE To drug of choice.....01
___ DRUG: Complex administration 28	___ ADD Rx drug therapy.....02
___ DRUG: Other specific problem 29	___ SUBSTITUTION: Generic 03
___ PATIENT Over-utilization of drug 31	___ SUBSTITUTION: Therapeutic 04
___ PATIENT Under-utilization of drug 32	___ ADD OTC drug therapy..... 05
___ PATIENT Communication difficulty 33	___ CHANGE Dose.....11
___ PATIENT Case managed 34	___ CHANGE Dosage regimen..... 12
___ PATIENT: Other improper use of drug 35	___ DISCONTINUE Drug..... 21
___ PATIENT Seeking care: with symptoms 41	___ DO NOT dispense..... 22
___ PATIENT Seeking care: NO symptoms 42	___ COUNSEL Patient..... 30
___ OTHER NON-drug problems 90	___ REFERRAL..... 40
Third Party Type: <u>001 Medicaid</u>	___ DISPENSE As Written.....90
WASHINGTON Pharmacist CARE Project Documentation Form	Morbidity Risk: <u>Low(1)</u> <u>Moderate(2)</u> <u>High(3)</u>
	CS Code [NDC] #:
	88888 - - - - -

COMMENTS/QUESTIONS/NOTES:

Case 4.

P.N. is a 63 year old male who presents with a prescription for **Lodine** which his physician states is a remarkable new anti-inflammatory drug for use when his back is having the "pulled" feeling. He has not tried other **NSAIDs** for treatment of his back pain.

SITE LD Date Rx # RPh Initials Total time (Hill.)

ORIGINAL Rx INFORMATION		DISPENSED Rx INFORMATION	
NDC#:	QTY:	NDC#:	QTY:

Problem:	Intervention:
<input type="checkbox"/> SUBOPTIMAL Drug 01	<input type="checkbox"/> CONSULT Prescriber phone/fax.....10
<input type="checkbox"/> SUBOPTIMAL Dose 02	<input type="checkbox"/> CONSULT Prescriber in person.....11
<input type="checkbox"/> SUBOPTIMAL Dosage regimen 03	<input type="checkbox"/> CONSULT RPh at another pharmacy.....20
<input type="checkbox"/> SUBOPTIMAL Dosage for 04	<input type="checkbox"/> CONSULT Patient 30
<input type="checkbox"/> SUBOPTIMAL Duration of use 05	<input type="checkbox"/> PATIENT Assessment 31
<input type="checkbox"/> SUBOPTIMAL: Dnnecessary drug therapy 06	<input type="checkbox"/> PATIENT Training 32
<input type="checkbox"/> DRUG: Therapeutic duplication 11	<input type="checkbox"/> CONSULT Medicaid (3rd Party Payor).....40
<input type="checkbox"/> DRUG-Drug interaction 21	<input type="checkbox"/> REVIEW Profile or chart.....50
<input type="checkbox"/> DRUG-Disease interaction 22	<input type="checkbox"/> REVIEW Laboratory tests.....51
<input type="checkbox"/> DRUG-Allergy/intolerance 23	<input type="checkbox"/> REVIEW Literature 60
<input type="checkbox"/> DRUG-Food interaction 24	<input type="checkbox"/> OTHER 80
<input type="checkbox"/> DRUG-Lab test interaction 25	
<input type="checkbox"/> ADR: Preventable 26	Result:
<input type="checkbox"/> ADR: Observed 27	<input type="checkbox"/> CHANGE To drug of choice......01
<input type="checkbox"/> DRUG: Complex administration 28	<input type="checkbox"/> ADD Rx drug therapy..... .02
<input type="checkbox"/> DRUG: Other specific problem 29	<input type="checkbox"/> SUBSTITUTION: Generic03
<input type="checkbox"/> PATIENT Over-utilization of drug 31	<input type="checkbox"/> SUBSTITUTION: Therapeutic..... .04
<input type="checkbox"/> PATIENT Under-utilization of drug 32	<input type="checkbox"/> ADD OTC drug therapy..... .05
<input type="checkbox"/> PATIENT Communication difficulty 33	<input type="checkbox"/> CHANGE Dose 11
<input type="checkbox"/> PATIENT Case managed 34	<input type="checkbox"/> CHANGE Dosage regimen.....12
<input type="checkbox"/> PATIENT: Other improper use of drug 35	<input type="checkbox"/> DISCONTINUE Drug..... 21
<input type="checkbox"/> PATIENT Seeking care: with symptoms 41	<input type="checkbox"/> DO NOT dispense 22
<input type="checkbox"/> PATIENT Seeking care: NO symptoms 42	<input type="checkbox"/> COUNSEL Patient 30
<input type="checkbox"/> OTHER NON-drug problems 90	<input type="checkbox"/> REFERRAL..... 40
Third Party Type: <u>001 Medicaid</u>	<input type="checkbox"/> DISPENSE As Written.....90
WASHINGTON Pharmacist CARE Project Documentation Form	Morbidity Risk: <u>Low(1)</u> <u>Moderate(2)</u> <u>High(3)</u>
	CS Code [NDC] #: <u>88888 -</u>

COMMENTS/QUESTIONS/NOTES:

Case 5.

J.J. is a 4 year old child weighing 23 kg who presents to your pharmacy with the following prescription:

F. Jones, M.D.
44445th Ave. SW
Burien, WA
555-9999

Patient: Jan Jenkins Date 10-30-93

Address: _____

Sig: Cortisporin Otic Susp
1 bottle
2 tap ® ea qid

F. Jones
Substitution Permitted _____ Dispense as Written _____

DEA # _____

R e f i l l 0

COMMENTS/QUESTIONS/NOTES:

SITE ID _____ Date _____ Rx # _____ RPh Initials _____ Total Time (Kin.) _____

ORIGINAL RI INFORMATION		DISPENSED RI INFORMATION	
NDC#:	QTY:	NDC#:	QTY:

Problem:

- ___ SUBOPTIMAL Drug 01
- ___ SUBOPTIMAL Dose 02
- ___ SUBOPTIMAL Dosage regimen 03
- ___ SUBOPTIMAL Dosage form 04
- ___ SUBOPTIMAL Duration of use 05
- ___ SUBOPTIMAL: unnecessary drug therapy 06
- ___ DRUG: Therapeutic duplication 11
- ___ DRUG-Drug interaction 21
- ___ DRUG-Disease interaction 22
- ___ DRUG-Allergy/intolerance 23
- ___ DRUG-Food interaction 24
- ___ DRUG-Lab test interaction 25
- ___ ADR: Preventable 26
- ___ ADR: Observed 27
- ___ DRUG: Coupler administration 28
- DRUG: Other specific problem 29
- ___ PATIENT Over-utilization of drug 31
- ___ PATIENT Under-utilization of drug 32
- ___ PATIENT Communication difficulty 33
- ___ PATIENT Case managed...; 34
- ___ PATIENT: Other improper use of drug 35
- ___ PATIENT Seeking me: with symptoms 41
- ___ PATIENT Seeking care: NO symptoms 42
- ___ OTHER NON-drug problems 90

Third Party Type: 001 Medicaid
 WASHINGTON Pharmacist CARE Project Documentation Form

Intervention:

- ___ CONSULT Prescriber phone/fax 10
- ___ CONSULT Prescriber in person 11
- ___ CONSULT RPh at another pharmacy 20
- ___ CONSULT Patient 30
- ___ PATIENT Assessment 31
- ___ PATIENT Training 32
- ___ CONSULT Medicaid (3rd Party Payor) 40
- ___ REVIEW Profile or chart 50
- ___ REVIEW Laboratory tests 51
- ___ REVIEW Literature 60
- ___ OTHER 80

Result:

- ___ CHANGE To drug of choice 01
- ___ ADD Rx drug therapy 02
- ___ SUBSTITUTION: Generic 03
- ___ SUBSTITUTION: Therapeutic 04
- ___ ADD OTC drug therapy 11
- ___ CHANGE Dose 11
- ___ CHANGE Dosage regimen 12
- ___ DISCONTINUE Drug 21
- ___ Do NOT dispense 22
- ___ COUNSEL Patient 30
- ___ REFERRAL 40
- ___ DISPENSE As Written 90

Morbidity Risk: ___ Low(1) ___ Moderate(2) ___ High(3)
 CS Code [NDC] #: _____

Case 6.

A patient presents with a new prescription for Erythromycin 500mg qid for 14 days. This patient is also on the following medications from your pharmacy:

Theo-Dur 300mg bid,
 Azmacort Inhaler 1 puff qid
 Ventolin Inhaler 2 puffs qid pm

SITE ID _____ Date _____ Rx # _____ RPh Initials _____ Total Time (Min.) _____

ORIGINAL RX INFORMATION		DISPENSED RX INFORMATION	
NDC#:	QTY:	NDC#:	QTY:

Problems:

___ SUBOPTIMAL Drug 0
 ___ SUBOPTIMAL Dose 02
 ___ SUBOPTIMAL Dosage regimen 03
 ___ SUBOPTIMAL Dosage form 04
 ___ SUBOPTIMAL Duration of use 05
 ___ SUBOPTIMAL: Unnecessary drug therapy 06
 ___ DRUG: Therapeutic duplication 11
 ___ DRUG-Drug interaction 21
 ___ DRUG-Disease interaction 22
 ___ DRUG-Allergy/intolerance 23
 ___ DRUG-Food interaction..... 24
 ___ DRUG-Lab test interaction 25
 ___ ADR: Preventable 26
 ___ ADR: Observed 27
 ___ DRUG: Complex administration 28
 ___ DRUG: Other specific problem 29
 ___ PATIENT Over-utilization of drug 31
 ___ PATIENT Under-utilization of drug 32
 ___ PATIENT Communication difficulty 33
 ___ PATIENT Case managed 34
 ___ PATIENT: Other improper use of drug 35
 ___ PATIENT Seeking care: with symptoms 41
 ___ PATIENT Seeking care: NO symptoms 42
 ___ OTHER NON-drug problems 90

Third Party Type: 001 Medicaid
 WASHINGTON Pharmacist CARE Project Documentation Pon

Intervention:

___ CONSULT Prescriber phone/fax 1
 ___ CONSULT Prescriber in person..... 1
 ___ CONSULT RPh at another pharmacy 2
 ___ CONSULT Patient..... 3
 ___ PATIENT Assessment..... 3
 ___ PATIENT Training..... 3
 ___ CONSULT Medicaid (3rd Party Payor)..... 4
 ___ REVIEW Profile or chart 5
 ___ REVIEW Laboratory tests.....
 ___ REVIEW Literature 6
 ___ OTHER..... 8

Result:

___ CHANGE To drug of choice..... 0
 ___ ADD Rx drug therapy.. 0
 ___ SUBSTITUTION: Generic 0
 ___ SUBSTITUTION: Therapeutic..... 0
 ___ ADD OTC drug therapy.. 0
 ___ CHANGE Dose..... 1
 ___ CHANGE Dosage regimen
 ___ DISCONTINUE Drug..... 2
 ___ DO NOT dispense.....
 ___ COUNSEL Patient.....
 ___ REFERRAL..... 4
 ___ DISPENSE as Written.....

Morbidity Risk: Low(1) Moderate(2) High(3)
 CS Code [NDC] #:
 88888 - _____

COMMENTS/QUESTIONS/NOTES:

Case 7.

A patient presents the following prescription for filling:

C.A. Heart, M.D.
55555 4th NE
Seattle, WA
555-1212

Patient: Harry Hill Date 10-16-93
Address: _____

*Sig: digoxin 0.125mg #100
T po qd*

Heart
Substitution Permitted Dispense as Written

DEA # _____

Refill 3

The patient is currently on the following medications according to his **profile**:

Lanoxin 0.25mg qd - last fill # 100 9/29/93 Dr. Panner
Furosemide 40mg qd - last fill # 100 9/29/93 Dr. Panner
KCL 20 mEq 1 capsule bid - last fill #200 9/29/93 Dr. Panner

COMMENTS/QUESTIONS/NOTES:

SITE ID _____ Date _____ Rx # _____ Rph Initials _____ Total Time (Kin.) _____

ORIGINAL RX INFORMATION		DISPENSED RX INFORMATION	
NDC#:	QTY:	NDC#:	QTY:

- Problem :**
- ___ SUBOPTIMAL Drug 01
 - ___ SUBOPTIMAL Dose 02
 - ___ SUBOPTIMAL Dosage regimen 03
 - ___ SUBOPTIMAL Dosage fon. 04
 - ___ SUBOPTIMAL Duration of use 05
 - ___ SUBOPTIMAL: Unnecessary drug therapy 06
 - ___ DRUG: Therapeutic duplication 11
 - ___ DRUG-Drug interaction 21
 - ___ DRDG-Disease interaction 22
 - ___ DRUG-Allergy/intolerance 23
 - ___ DRUG-Food interaction 24
 - ___ DRUG-tab test interaction 25
 - ___ ADR: Preventable 26
 - ___ ADR: Observed 27
 - ___ DRUG: Complex administration 28
 - ___ DRUG: Other specific probler 29
 - ___ PATIENT Over-utilization of drug 31
 - ___ PATIENT Under-utiliration of drug 32
 - ___ PATIENT Communication difficulty 33
 - ___ PATIENT Case managed 34
 - ___ PATIENT: Other improper use of drug 35
 - ___ PATIENT Seeking care: with symptoms 41
 - ___ PATIENT Seeking care: NO symptoms 42
 - ___ OTHER NON-drug problems 90

Third Party Type: 001 Medicaid
 WASHINGTON Pharmacist CARE Project Documentation Form

- Intervention:**
- ___ CONSULT Prescriber phone/fax 10
 - ___ CONSULT Prescriber in person 11
 - ___ CONSULT Rph at another pharmacy 20
 - ___ CONSULT Patient 30
 - ___ PATIENT Assessment 31
 - ___ PATIENT Training 32
 - ___ CONSULT Medicaid (3rd Party Payor) 40
 - ___ REVIEW Profile or chart. 50
 - ___ REVIEW Laboratory tests. 51
 - ___ REVIEW Literature 60
 - ___ OTHER 80

- Result:**
- ___ CHANGE To drug of choice 01
 - ___ ADD Rx drug therapy 02
 - ___ SUBSTITUTION: Generic 03
 - ___ SUBSTITUTION: Therapeutic 04
 - ___ ADD OTC drug therapy 05
 - ___ CHANGE Dose 11
 - ___ CHANGE Dosage regimen 12
 - ___ DISCONTINUE Drug <.....* 21
 - ___ DO NOT dispense 22
 - ___ COUNSEL Patient 30
 - ___ REFERRAL 40
 - ___ DISPENSE As Written 90

Morbidity Risk: Low(1) Moderate(2) High(3)
 CS Code [NDC] #: 88888 - _____

Case 8.

R.M. is a 2 year old, 30 pound male. He has no history of allergies to medications. The following prescription is presented to your pharmacy to be filled for R.M.

Ernest Ear, M.D.
1234 Canal Drive
Seattle, WA 98107
555-6789

Patient: Gudy Media Date: 11-4-93
Address: 11221 3rd NW

Septin Suspension
Sig: 1 1/2 tsp po tid
Disp. 240cc

Substitution Permitted

EEA
Dispense as Written

DEA# _____

Refill 0

COMMENTS/QUESTIONS/NOTES:

ITE ID _____ Date _____ Rx # _____ RPh Initials _____ Total Time (Min.) _____

ORIGINAL RX INFORMATION		DISPENSED RX INFORMATION	
NDC#:	QTY:	NDC#:	QTY:

Problem:

- ___ SUBOPTIMAL Drug 01
- ___ SUBOPTIMAL Dose 02
- ___ SUBOPTIMAL Dosage regimen- 03
- ___ SUBOPTIMAL Dosage form 04
- ___ SUBOPTIMAL Duration of use 05
- ___ SUBOPTIMAL: Unnecessary drug therapy 06
- ___ DRUG: Therapeutic duplication 11
- ___ DRUG-Drug interaction 21
- ___ DRUG-Disease interaction 22
- ___ DRUG-Allergy/intolerance 23
- ___ DRUG-Food interaction 24
- ___ DRUG-Lab test interaction 25
- ___ ADR: Preventable 26
- ___ ADR: Observed 21
- ___ DRUG: Complex administration 28
- ___ DRUG: Other specific problem 29
- ___ PATIENT Over-utilization of drug 31
- ___ PATIENT Under-utilization of drug 32
- ___ PATIENT Communication difficulty 33
- ___ PATIENT Case managed 34
- ___ PATIENT: Other improper use of drug 35
- ___ PATIENT Seeking care: with symptoms 41
- ___ PATIENT Seeking care: NO symptoms 42
- ___ OTHER NON-drug problems 90

Third Party Type: 001 Medicaid

WASHINGTON Pharmacist CARE Project Documentation Form

Intervention:

- ___ CONSULT Prescriber phone/fax 10
- ___ CONSULT Prescriber in person..... 11
- ___ CONSULT RPh at another pharmacy..... 20
- ___ CONSULT Patient..... 30
- ___ PATIENT Assessment..... 3
- ___ PATIENT Training..... 32
- ___ CONSULT Medicaid (3rd Party Payor)..... 40
- ___ REVIEW Profile or chart..... 50
- ___ REVIEW Laboratory tests..... 51
- ___ REVIEW Literature 60
- ___ OTHER..... 80

Result:

- ___ CHANGE To drug Of choice.....01
- ___ ADD Rx drug therapy..... .02
- ___ SUBSTITUTION: Generic.....03
- ___ SUBSTITUTION: Therapeutic.....04
- ___ ADD OTC drug therapy..... 05
- ___ CHANGE Dose..... 11
- ___ CHANGE Dosage regimen12
- ___ DISCONTINUE Drug..... 21
- ___ DO NOT dispense;..... .22
- ___ COUNSEL Patient..... .30
- ___ REFERRAL..... .4 0
- ___ DISPERSE As Written..... .90

Morbidity Risk: ___ Low(1) ___ Moderate(2) ___ High(3)

CS Code {NDC} #:

88888 - - - - -

Case 9.

S.L. is a 23 year old Spanish-speaking female who presents with a prescription for Cafegot Suppositories for control of migraine headaches She speaks no English and expresses confusion when you try to explain the regimen for use of Cafegot You contact a colleague pharmacist down the street who speaks Spanish. This pharmacist volunteers to instruct her over the phone on the use of Cafegot Suppositories.

SITE ID _____ Date _____ Rx # _____ Rph Initials _____ Total Time (Kin.) _____

ORIGINAL RX INFORMATION		DISPENSED RX INFORMATION	
NDC#:	QTY:	NDC#:	QTY:

Problem:

___ SUBOPTIMAL Drug 01
 ___ SUBOPTIMAL Dose 02
 ___ SUBOPTIMAL Dosage regimen 03
 ___ SUBOPTIMAL Dosage form 04
 ___ SUBOPTIMAL Duration of use 05
 ___ SUBOPTIMAL: Unnecessary drug therapy 06
 ___ DRUG: Therapeutic duplication 11
 ___ DRUG-Drug interaction 21
 ___ DRUG-Disease interaction 22
 ___ DRUG-Allergy/intolerance 23
 ___ DRUG-Food interaction 24
 ___ DRUG-Lab test interaction 25
 ___ ADR: Preventable 26
 ___ ADR: Observed 27
 ___ DRUG: Complex administration 28
 ___ DRUG: Other specific problem 29
 ___ PATIENT Over-utilization of drug 31
 ___ PATIENT O&r-utilization of drug 32
 ___ PATIENT Communication difficulty 33
 ___ PATIENT Case managed 34
 ___ PATIENT: Other improper use of drug 35
 ___ PATIENT Seeking care: with symptoms 41
 ___ PATIENT Seeking care: NO symptoms 42
 ___ OTHER NON-drug problems 90

Third Party Type: 001 Medicaid
 WASHINGTON Pharmacist CARE Project Documentation Form

Intervention:

___ CONSULT Prescriber phone/fax 10
 ___ CONSULT Prescriber in person.. 11
 ___ CONSULT Rph at another pharmacy..... 20
 ___ CONSULT Patient..... 30
 ___ PATIENT Assessment..... 31
 ___ PATIENT Training..... 32
 ___ CONSULT Medicaid (3rd Party Payor)..... 40
 ___ REVIEW Profile or chart..... 50
 ___ REVIEW Laboratory tests..... 51
 ___ REVIEW Literature 60
 ___ OTHER..... 80

Result:

___ CHANGE To drug of choice..... 01
 ___ ADD Rx drug therapy 02
 ___ SUBSTITUTION: Generic, 03
 ___ SUBSTITUTION: Therapeutic..... 04
 ___ ADD OTC drug therapy..... 05
 ___ CHANGE Dose..... 11
 ___ CHANGE Dosage regimen.. 12
 ___ DISCONTINUE Drug 21
 ___ DO NOT dispense..... 22
 ___ COUNSEL Patient..... 30
 ___ REFERRAL..... 40
 ___ DISPENSE As Written..... 90

Morbidity Risk: ___ Low(1) ___ Moderate(2) ___ High(3)
 CS Code [NDC] #: 88888 - - - - -

COMMENTS/QUESTIONS/NOTES:

Case 10.

S.P. is a 23 year old male who presents to your pharmacy with symptoms of rhinorrhea and nasal congestions. He states that, typically, he gets these symptoms at this time of year and believes them to be an allergy to pollens. He would like your advice on what OTC product would help to control his allergies. He states that his medical coverage is through Washington Medicaid.

SITE ID _____ Date _____ Rx # _____ RPh Initials _____ Total Time (Kin.) _____

ORIGINAL RX INFORMATION		DISPENSED RX INFORMATION	
NDC#:	QTY:	NDC#:	QTY:

Problem:

- ___ SUBOPTIMAL Drug 01
- ___ SUBOPTIMAL Dose 02
- ___ SUBOPTIMAL Dosage regimen 03
- ___ SUBOPTIMAL Dosage form 04
- ___ SUBOPTIMAL Duration of use 05
- ___ SUBOPTIMAL: Unnecessary drug therapy 06
- ___ DRUG: Therapeutic duplication 11
- ___ DRUG-Drug interaction 21
- ___ DRUG-Disease interaction 22
- ___ DRUG-Allergy/intolerance 23
- ___ DRUG-Food interaction 24
- ___ DRUG-Lab test interaction 25
- ___ ADR: Preventable 26
- ___ ADR: observed 27
- ___ DRUG: Complex administration 28
- ___ DRUG: Other specific problem 29
- ___ PATIENT Over-utilization of drug 31
- ___ PATIENT Under-utilization of drug 32
- ___ PATIENT Communication difficulty 33
- ___ PATIENT Case managed 34
- ___ PATIENT: Other improper use of drug 35
- ___ PATIENT Seeking care: with symptoms 41
- ___ PATIENT Seeking care: NO symptoms 42
- ___ OTHER NON-drug problems 90

Third Party Type: 001 Medicaid
 WASHINGTON Pharmacist CARE Project Documentation Form

Intervention:

- ___ CONSULT Prescriber phone/fax 10
- ___ CONSULT Prescriber in person 11
- ___ CONSULT RPh at another pharmacy 20
- ___ CONSULT Patient 30
- ___ PATIENT Assessment 31
- ___ PATIENT Training 32
- ___ CONSULT Medicaid (3rd Party Payor) 40
- ___ REVIEW Profile or chart 50
- ___ REVIEW Laboratory tests 51
- ___ REVIEW Literature 60
- ___ OTHER 80

Result:

- ___ CHANGE To drug of choice 01
- ___ ADD Rx drug therapy 02
- ___ SUBSTITUTION: Generic 03
- ___ SUBSTITUTION: Therapeutic 04
- ___ ADD OTC drug therapy 05
- ___ CHANGE Dose 11
- ___ CHANGE Dosage regimen 12
- ___ DISCONTINUE Drug 21
- ___ DO NOT dispense 22
- ___ COUNSEL Patient 30
- ___ REFERRAL 40
- ___ DISPENSE As Written 90

Morbidity Risk: Low(1) Moderate(2) High(3)
 CS Code [NDC] #: _____
 88888 - _____

COMMENTS/QUESTIONS/NOTES:

Appendix F: Pharmacists' Training: Four Case Studies

The Pharmacist A.R.E. Project

Problems that Affect Patient Health Care

Cases for Documentation of Cognitive Services

The following cases are similar to cases that have been documented for the CARE Project. As you know, caring for one patient can involve several problems to be resolved, each of which should be documented separately.

Please read the cases and indicate how you would document your intervention on the paper forms enclosed. We will review these cases during the programs scheduled in October and November, 1994 so please bring your completed forms to the program.

Case for Patient #1

One of your regular patient requests a refill of her Tegretol 200mg™ She used to take 1 po am and 2 po pm, but the doctor changed it to 2 po am and 2 po pm on 7-9-94. She called for a refill on 8-20-94, and you gave her another 30 day supply, as usual. You also discussed with her that she shouldn't go without her medication. She said she was taking it "right" and wasn't having any problems. Today, 10-5-94, she hands you her bottle and you note that there are 4 tablets in it. You ask her how she's taking this medicine, and today she admits that sometimes she forgets to take 2 tablets morning and night. You explain the importance of compliance with her medication and refill her prescription.

How would you document this case on 10-5-94?

Case for Patient #2

One of your patients has been taking Diabeta 10mg bid for Type II Diabetes. He began with 2.5mg bid last year and has increased over the year to the current dose. The physician told him that the medication is not controlling his diabetes, and he has to begin taking insulin. He presents a prescription for Humulin N 100 units, sig: Inject 40 units qd and syringes. He is to return to the physician in one week for testing and dosage adjustment and decrease his Diabeta to 10mg po qd. He is frightened at the thought of giving himself shots and isn't certain how to do it even though it was explained to him in the physician's office. You fill his insulin prescription and then teach him how to fill a syringe and give an injection. By the time you are finished, he has successfully given himself an injection and leaves feeling less anxious about his new drug therapy.

How would you document this case?



The Pharmacist CARE Project

Case for Patient #3

A customer in his mid forties comes into your pharmacy buy some ibuprofen 200mg™. He tells you he's been feeling dizzy and has had a bad headache the last two days. Hi! states he used to take Atenolol 50mg™ 1 po daily for his blood pressure, before he moved to Washington last year. He stopped taking it because he was feeling fine and didn't think he needed it any more. The only medicine he takes is Ibuprofen for muscle aches. You offer to take his blood pressure and find that it is 160/108. You contact a physician you know in your building and he asks YOU to send this patient to him immediately. You have your technician take him to the physician's office. The patient later returns and presents you with a prescription for Atenolol 50mg™, Sig: 1 po qd #30, which you dispense.

How would you document this case?



Case for Patient #4

A non-English speaking woman enters your pharmacy with her daughter who speaks English. The patient is 60 years old and has been receiving her medications from your pharmacy for the past six months. She was recently in the hospital and has a copy of her discharge order which includes medications.

. According to her profile in your pharmacy, she has been taking:
Perphenazine 16mg™, sig: 1/2 tablet bid.

The discharge order indicates she is to take 3/4 tablet bid. The daughter explains they have a pill'cutter at home so the tablet can be cut to the size required, but her mother remains confused about the dosage of medication she is to take now.

How would you document this case?

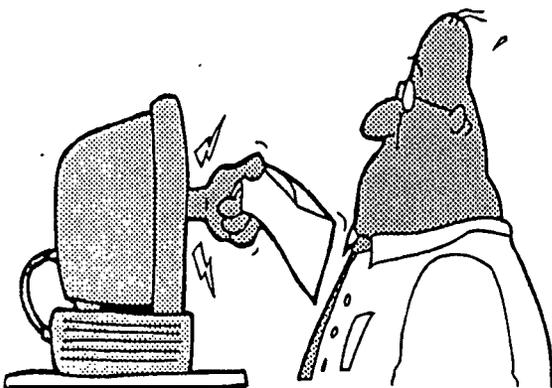
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Appendix G: CARE Reference Materials for Pharmacists' Workstations

IF YOU RECEIVE A REQUEST FOR CORRECTIONS:

Accurate data are essential for this study. When cognitive service documentations are entered into our computer, they are checked to make sure that the information is complete and logically consistent. Most of the time they are, but sometimes it's necessary to obtain a little more information.

If you receive one of these DATA CORRECTION FORMS, please correct, complete, or clarify the entry in question (the form will indicate what we need) and return the information to us as soon as possible. We'll make the changes in our database.



FINDING THE TIME...

No time to document? Here's what other pharmacists suggest: "Clip the documentation form to the Rx & fill it out later." "Use 'post-it' notes to mark the Rx & document the cognitive service when you have time." "At day's end, review your daily audit for any DSHS scripts you intervened upon."

IF YOU NEED SUPPLIES...

All project-related supplies are available to participating pharmacies at no charge. Call us, fax, or drop us a note to tell us what you need, and we'll send it out to you, usually within 48 hours.

IF YOU NEED HELP...

Let us know if you run into problems, or if you have questions. We're here to help!

**I-800-801 -9076 Toll Free
(206) 685-9615 Fax**

Our toll-free line is answered by clerical staff at the UW Pharmacy School during regular business hours, and the line is equipped with voice messaging 24 hours a day.

University of Washington School of Pharmacy, in collaboration with the Health Care Financing Administration and the WA State Department of Social and Health Services



IS IT A COGNITIVE SERVICE?

If you can answer "yes" to all five questions below, then it's probably a documentable cognitive service for the C.A. R. E. Project

1. is this a DSHS patient?
2. Is this a potential, or actual drug-related problem?
3. Did you intervene in an attempt to resolve the problem?
4. Was the problem something other than an Rx clarification?
5. Was the problem something other than a need to contact DSHS because of the supplemental discount program or prior authorization requirement?

Still in doubt?

Document the event as a cognitive service, explaining what happened in the comments section or in a separate note, and send it in. We'll fake it from there.

DOCUMENTING THE COGNITIVE SERVICE:

Each unique problem is documented as a unique cognitive service.
 You may document as 2 cognitive services per patient, per RX, per day.
 Indicate the problem, intervention, and result codes that apply to the situation.
 For multiple interventions, place a "1" by the primary code, and check any others that apply. Do the same for the result codes.
 the cognitive service involves an Rx: Enter the Rx number.

Enter the 11-digit NDC numbers for any prescribed and/or dispensed drugs (we need to be able to relate your cognitive service to the drug or drugs involved)

IS more than one drug involved? Pick the one that motivated the documentation.
 We'll link that information with data about other drugs from the main Medicaid database.

the cognitive service does *not* involve an Rx: After the PIC # in the comments section (this will help us to link the cognitive service to the patient's profile later on),

you fill a Mediset in order to avoid a (potential actual) compliance-related problem, this is a cognitive service and should be documented. If s done for patient convenience only, it should be documented as a cognitive service.

Use Managed Patients

referred by a health professional for periodic monitoring, follow-up is a documentable cognitive service.

BILLING FOR COGNITIVE SERVICES (Group A)

- Bill the cognitive service as if it were an Rx

- Instead of NDC#, use a CS code #

- In the Quantity field, put the number of minutes your intervention required.

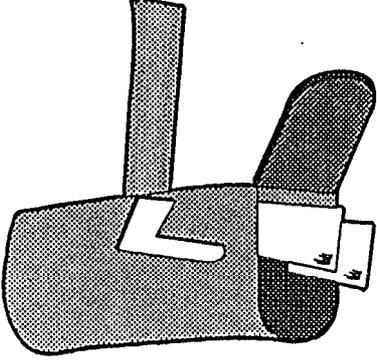
- IMPORTANT! Enter either \$4 or \$6 in the Amount Billed field, as appropriate (\$6 if the intervention was >6 min; \$4 otherwise)

- Cognitive services codes that are not in your computer may nevertheless be payable. Submit the claim to DSHS (the worst that will happen is that they won't pay it.)

- If you receive rejected cognitive service claims from DSHS and you're not sure why, let us know.

- Your reimbursement from DSHS should represent \$4 or \$6 (as appropriate) for each cognitive services claim. If it's different, let us know.

SENDING IN MONTHLY DATA TO THE UNIVERSITY



We need to hear from you each month whether or not you have any cognitive services to report!

If you have no documentations to send we still need to receive a transmittal form from you indicating "0" documentations for the month.

WHAT TO SEND:

1. Transmittal form (indicating number of documentations submitted and total Rx volume for the month)

2. Cognitive Service Documentations (on paper or disk)

3. DSHS monthly \$40 stipend voucher (which are cleared for payment only after we've received your monthly data and/or transmittal form at the University!)

ANATOMY OF A COGNITIVE SERVICE DOCUMENTATION

If a drug is dispensed, use the Rx number of the drug claim filed with Medicaid.
Group A: If no drug was dispensed, use Rx # on claim filed for the cognitive service.
Group B: If no drug was dispensed, leave this field blank

Your DSHS or NAPB # Date on which the cognitive service was provided R.Ph. initials legible please! Actual time spent performing the cognitive service, in minutes

NDCs HAVE 11 DIGITS!!

Complete all boxes...

Place a "1" next to the primary problem.

Place a "1" next to the primary intervention & result codes. Related interventions & results should be marked with a "Y."

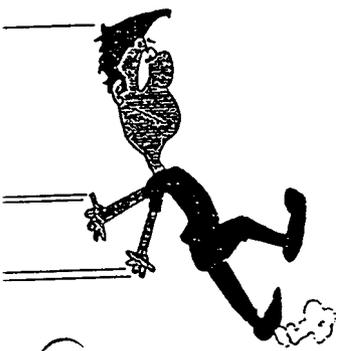
--ORIGINAL RX INFORMATION--			--DISPENSED RX INFORMATION--		
SITE ID	Date	Rx #	RPh Initials	Total Time (Min.)	
NDC#	QTY	DAYS SUPPLY	NDC#	QTY	DAYS SUPPLY
Problem:			Intervention:		
___ SUBOPTIMAL Drug	01		___ CONSULT Prescriber phone call	10	
___ SUBOPTIMAL Dose	02		___ CONSULT Prescriber in person	11	
___ SUBOPTIMAL Dosage regimen	03		___ CONSULT RPh at another pharmacy	20	
___ SUBOPTIMAL Dosage form/route of admin.	04		___ CONSULT Patient	30	
___ SUBOPTIMAL Duration of use	05		___ PATIENT Assessment	31	
___ SUBOPTIMAL: Unnecessary drug therapy	06		___ PATIENT Training	32	
___ DRUG: Therapeutic duplication	11		___ CONSULT Medicaid (3rd Party Payor)	40	
___ DRUG-Drug interaction	21		___ REVIEW Profile or chart	50	
___ DRUG-Disease interaction	22		___ REVIEW Laboratory tests	51	
___ DRUG-Allergy/intolerance	23		___ REVIEW Literature	60	
___ DRUG-Food interaction	24		___ OTHER	80	
___ DRUG-Lab test interaction	25				
___ ADR: Preventable	26		Result:		
___ ADR: Observed	27		___ CHANGE To drug of choice	01	
___ DRUG: Complex administration	28		___ ADD Rx drug therapy	02	
___ DRUG: Other specific problem	29		___ SUBSTITUTION: Generic	03	
___ PATIENT Over-utilization of drug	31		___ SUBSTITUTION: Therapeutic	04	
___ PATIENT Under-utilization of drug	32		___ ADD OTC drug therapy	05	
___ PATIENT Communication difficulty	33		___ CHANGE Dose	11	
___ PATIENT Case managed	34		___ CHANGE Dosage regimen/Duration of use	1 2	
___ PATIENT: Other improper use of drug	35		___ DISCONTINUE Drug	2 1	
___ PATIENT Seeking care: with symptoms	41		___ DO NOT dispense	22	
___ PATIENT Seeking care: NO symptoms	42		___ COUNSEL Patient	30	
___ OTHER NON-drug problems	90		___ REFERRAL	40	
			___ DISPENSE As Written	90	
			___ Morbidity Risk: ___ Low(1) ___ Moderate(2) ___ High(3)		
			___ CS Code (NDC) #:		

Low: intervention likely to increase, at most, patient convenience
Moderate: intervention likely to save the patient a routine, or urgent office visit
High: intervention likely to save the patient a subsequent ER visit or hospitalization

2 digit result code

2 digit intervention code

2 digit problem code



STOP!!

Is this a:

- routine patient counseling as required by law?
- clarification of missing Rx information?
- request for authorization under the State Supplemental Discount Program?
- forged prescription?
- provision of general drug information not related to a specific patient and specific result?

THESE SERVICES ARE NOT TO BE DOCUMENTED NORMALLY ON A...

TRANSMITTAL FORM



MONTHLY DOCUMENTATION TRANSMITTAL REPORT
(Include with each month's forms or diskette)

Pharmacy Name, Address (May Use Stamp)

Pharmacy Name
Address

DSHS or NARP No.: _____
This documentation is for the month of March 19__

Enclosed are:
 Manual forms: _____ (indicate quantity enclosed)
 5 1/4-inch diskette produced by Stotler Program Lloyd Program Other
 3 1/2-inch diskette produced by Stotler Program Lloyd Program Other

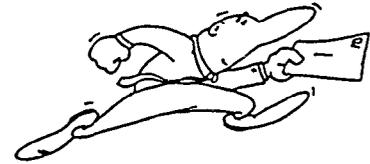
Total prescriptions filled during the month: Total Rx filled (not just DSHS!)

If our pharmacists have joined your staff this month, please have them read the statement below and add their initials, license number, and signature.

Your pharmacy has applied to be a participating site in the Pharmacist CARE Project, which is intended to demonstrate the effectiveness of paying pharmacists to provide cognitive services to Medicaid patients. As part of the documentation, it is important to be able to identify which pharmacist has performed the cognitive services documented during the study period. During or after the study period, you may be asked, for example, to respond to surveys from the investigators regarding your participation in the study. The study team will not reveal your identity in any way, and all reports will be designed to conceal the identity of the pharmacist and pharmacist who participate.

Please indicate below the initials you will use during the study period when documenting your interventions regarding Medicaid prescriptions and patients, and indicate by your signature your willingness to participate in the study:

Initials	VA Pharmacist License #	Signature
_____	_____	_____
_____	_____	_____
_____	_____	_____



MAIL DATA AND VOUCHERS
TO THE UNIVERSITY MONTHLY!

INVOICE VOUCHER

Form AIS-1A
STATE OF WASHINGTON
INVOICE VOUCHER

AGENCY NAME

VENDOR OR CLAIMANT (Person to be payable to)

Pharmacy Name
Address
City, State Zip

AGENCY USE ONLY

AGENCY NO.	LOCATION CODE	P.A. OR AUTH. NO.

INSTRUCTIONS TO VENDOR OR CLAIMANT: Submit this form to your agency for electronic transmission to services. Show complete date for each date.

Vendor's Certificate: I hereby certify under penalty of perjury that the name and items listed herein are correct charges for Medicaid prescriptions or services furnished to the State of Washington, and that all goods furnished under contract contained herein have been provided without discrimination because of age, sex, marital status, race, creed, color, national origin, handicap, religion, or because of disabled status.

BY Sign Here!
DATE

DATE	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	FOR AGENCY USE
	Provider Number				\$40	
	For the month of:					



QUESTIONS?

Call us, Toll Free: 1-800-801-9076

Appendix H: C. A. R. E. *Talk* Newsletters

-- The Pharmacist  A.R.E. Project
Cognitive Activities & Reimbursement Effectiveness

February 18, 1994

CARE TALK

Volume 1 Number 1

We know you share with us a sense of the importance of the CARE project and its implications regarding policies for reimbursement of cognitive services. In the coming months, there will be a number of issues and new developments concerning our project in particular, and cognitive services in general. We will use this newsletter to keep in touch, and to address issues, concerns, and news surrounding cognitive services. Please send us your suggestions, questions, or issues you think should be discussed in forthcoming editions. For this edition, we will use a Q & A format.

Question 1: I noticed a number of pharmacies in my area ended up in the same group (A or B). How did this happen?

Question 2: How and when do we document cognitive services under the State's new supplemental rebate / prior authorization program?

Question 3: Which do we record, the original problem that prompted our intervention, or a different problem identified in the course of the intervention?

Question 4: Under what conditions does the filling of Medi-Sets constitute a cognitive service?

Question 1:

I noticed a number of pharmacies in my area ended up in the same group (A or B). How did this happen?

Answer: This seems to be the most common question of the week! Our original intent was to use simple randomization to assign pharmacies to groups. However, this raised a possible problem in interpreting the results known as "contamination bias". Suppose there are two pharmacies within a few blocks of each other, both filling about the same number of prescriptions written by Doctor X. Pharmacy A is in Group A, and Pharmacy B is in Group B. Doctor X consistently prescribes in a manner that is sub-optimal. Now suppose Pharmacist B intervenes and successfully changes this physician's behavior. As a result of this intervention, the problem ceases to exist in prescriptions presented to either Pharmacy A or B. Retrospective analysis of the Medicaid claims may reveal no difference between the rate of drug therapy problems between the two pharmacies, thus masking the effects of the intervention.

To avoid this problem we decided to employ instead a cluster sampling technique. It was conducted as follows:

1. Using 1992 Medicaid Rx claims, pharmacies were linked with their most frequent prescribers.
2. Pharmacies were aggregated into clusters based on receiving prescriptions from the same physicians. These clusters represent market areas for pharmaceutical services.
3. A stratified random design was used to allocate clusters of pharmacies to Groups A and B.

The "stratified" feature was used to insure that participating pharmacies were approximately evenly drawn from geographic areas to minimize differences in practice characteristics. It is known, for example, that the five major metropolitan areas (Bellevue, Everett, Seattle, Spokane, and Tacoma) have different demographics than non-metropolitan areas, and it was desired to evenly represent pharmacies from rural counties. Therefore, clusters were assigned randomly to either Group A or B based on their geographic location.

The table below **displays the number** of pharmacies that originally volunteered for the study in **group A and B from each category.**

Stratification Areas	Group A	Group B
Major metropolitan areas	54	50
Rural counties	32	33
Urban counties outside metro areas	46	38
Total pharmacies	132	121

We hope you find this explanation **helpful**. If you **did** not get assigned to the group of your choice for this 12 months, we trust you will nevertheless **fully participate** in the study. As we have said many times, the outcome **of this** study has important **policy** implications for how pharmacists are likely to **be paid** in the **future**. Quite frankly, your **participation** is imperative to assure we have adequate numbers of participants to scientifically validate the **results** we obtain.

Question 2:

How and when do we document cognitive services under the State's new supplemental rebate/prior authorization program?

Answer: There has been **confusion** regarding what is considered a cognitive **service** under the DSHS **supplemental** rebate/prior authorization program. We ask you to do the following: **If you are:**

- **Calling** the 800 number for authorization to dispense a drug as prescribed:

Do not document the cognitive service

- **Recommending** to the prescriber a change to a **generically** or therapeutically equivalent product:

Please document this cognitive service.

The most likely **C.S.** codes would be:
88888 -1010 - - (03 or 04)

Problem: sub-optimal **drug**
Intervention: Contact prescriber (phone)
Result: Generic substitution (03) or therapeutic substitution (04)

Question 3:

Which do we record, the original problem that prompted our intervention, or a different problem identified in the course of our intervention?

Example:

You receive a prescription for **HCTZ 25 mg** and **K-Tabs 80 meq**. The problem is excessive dose of potassium but you also note the patient doesn't prefer **this** form of potassium, and prefers not to take potassium. Upon contacting the prescriber, both drugs are discontinued, and **Dyazide** is **prescribed** in its place.

Answer:

Original problem: sub-optimal dose (potassium)

Final problem: sub-optimal **drug**.

Intervention: contact prescriber

Results: a) change to drug of choice, and
b) discontinue drug(s)

In this case, we recommend you record this **cognitive service** as follows:

Problem: Sub-optimal drug (01) **Record original problem in the 'comments' field.**

Intervention: Contact prescriber (10)

Result: Change to drug of choice (01),
("1"-primary), and discontinue drug ("y"-secondary).

Question 4:

Under what conditions does the filling of Medi-Sets constitute a cognitive service?

Answer: It **should** be recorded **if** the **prescriber** asks you to fill the Medi-Set for purposes of **monitoring** compliance, and not for routine **dispensing** in the absence of a recognized **compliance** problem. Patient **training** and explanation should be involved. **This** should be coded as **Problem:** "Patient undercompliance" (code 32) or "Case managed patient" (code 34), **Intervention:** Contact prescriber (code 10) and **Result:** Dispense as written (code 90). This should be done only **at** the initial contact, and not for subsequent refill. **ings** of the Medi-Set container.

Stay tuned to CARE TALK: In future issues, we will share more about the CARE project and other pharmaceutical care projects in the state and nationally. As always, please bring to our attention any problems or comments you may have.

This is a **supplemental** edition for group A pharmacies only.
Two current billing issues are discussed.

Question 1:

DSHS rejected a Cognitive Service claim Z recently submitted, and Z don 't understand why.

Question 2:

What about billing for "case managed" patients?

Answer:

DSHS is screening CS claims against a set of **eligible** CS codes. Your claim was not **paid** because either:

- 1) it did not **meet** the payment rules establish in the CARE project training **manual**, or
- 2) it met the **payment** rules but was rejected **because** it was an illogical code **combination**. For example, a problem coded as 'suboptimal dose' with a **result** of 'change drug' is illogical (see Question 3 **in this newsletter**). In this case, we recommend you recode the problem as 'suboptimal drug' (if that is appropriate) and resubmit.

Please feel **free** to call us for **further** advice about specific billing problems.

Answer:

A case managed patient must be referred to the pharmacy by a physician or by Medicaid for management of a specific problem (Refer to the **definition** of case managed patient in the training manual for **further** details). For **reimbursement**, the pharmacy should maintain some documentation of this referral. There should also be some plan for periodic feedback to the referring **prescriber** or agency.



CARE TALK

Number 2

April 1994

COGNITIVE ACTIVITIES AND REIMBURSEMENT EFFECTIVENESS



Wave You Gotten Paid Yet?

A 11 CARE Project pharmacies are entitled to a \$40 per month participation fee. You should have received payment vouchers from DSHS in Olympia (if not, contact Garth Holmes at 206-586-7034). These vouchers go directly to DSHS at the end of each month in the postage-paid envelope provided. Your pharmacy's name is already on each voucher, you **don't need** a contract number. Just note in the upper right hand corner the month for which payment is requested.

TO EXPEDITE PAYMENT, VOUCHERS SHOULD BE SENT TO DSHS AT THE SAME TIME THAT MONTHLY COGNITIVE SERVICE REPORTS ARE SENT TO THE UNIVERSITY OF WASHINGTON.

Beginning in April, cognitive service reports received by the University will trigger the DSHS system to pay the participating pharmacist's voucher. But both

pieces--the voucher and the cognitive service report--will be necessary for payment vouchers to be processed.

KOMO Commentary

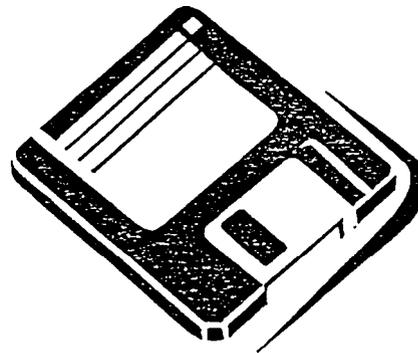
Reporter Ken Schram of Seattle's KOMO News recently aired an editorial questioning the wisdom of paying pharmacists additionally for "counseling" patients about drugs. As he put it, things like explaining a medication schedule or periodically reviewing a patient's drug-use history are "just part of the pharmacist's job" and should not be used as a means of "cashing in on health care reform"

In fact, routine counseling activities are part of a pharmacist's job. But working in concert with patients and care providers, drawing upon an extensive education about medicines and their effects on the body, and using that knowledge to improve the quality as well as the cost-effectiveness of medication use goes well beyond routine.

Both the Washington State Pharmacists Association and CARE Project representatives responded to Mr. Schram's comments. An aired rebuttal attempted to clarify the situation, emphasizing that it's hard to say what the impact of increased

pharmacist involvement would be on health care costs and outcomes, primarily because interventions typically help the system to avoid costs downstream. (Complete text of KOMO's editorial and the WSPAs response can be obtained from WSPA at 1-800-222-WSPA.)

The CARE Project is designed to document formally the impact of pharmacists' cognitive services on the costs and outcomes of health care. And the effect of reimbursement is an important part of the story. If we are to re-evaluate the way pharmacists utilize their time and expertise, then it seems appropriate also to rethink the way that pharmacists are compensated for their time.



Slipped a Disk?

Pharmacies submitting cognitive service documentation by computer should have received the updated (3-25-94) version of the Stotler program. Please take a couple of minutes to

install the update if you haven't already. It's a win-win situation: new editing features make the update easier for you to use, and on our end it makes the data infinitely easier to work with!

Oops!

Most of the documentations we receive from CARE pharmacies are complete and accurate. When there are problems, these are the most common:

- transmittal form not sent (fill out pharmacist initials, license number, and signature only for new pharmacists),
- site identification missing (your site ID is your DSHS provider number, or your NABP number; either one is OK to use),
- data submitted for non-Medicaid patients (report cognitive services for Medicaid patients **only**),
- missing prescription number,
- pharmacist's initials missing;
- original quantity and/or NDC number missing (if your intervention has resulted in a prescription **order change**);
- total monthly prescription volume of the pharmacy (an essential element if we are to be able to assess intervention rates accurately).

For those of you who use paper documentation, please send only the white copy to the University. Keep the yellow copy at your site. Keeping a copy at your pharmacy will enable us to follow up on specific interventions if necessary, and it gives you a record of your interventions as well.

As this newsletter goes to press we are gearing up to provide you with feedback about your submitted cognitive service documents. The goal is to assure that these documents accurately reflect the cognitive service activities of your pharmacy. You may soon be asked to verify any information about your pharmacy's activities that has been recorded in our database incorrectly or incompletely.

Challenging and Exciting Times to be a Pharmacist!

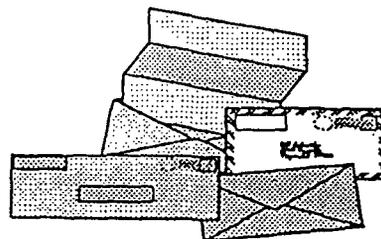
The APhA Annual Meeting held in Seattle recently was quite an event. The theme of the meeting, "Shaping the Future," was **right on target**. Pharmaceutical care dominated the programming at the meeting, with sessions on how to get started and how to obtain reimbursement for cognitive services. The interest shown in the CARE Project was considerable. The project was formally presented to the APhA Board of Trustees and in continuing education forums at the conference. Project representatives were asked numerous **questions along the** lines of "How's it going; do you have any data yet?" The enthusiasm was palpable.

Clearly, CARE is a highly visible study, with many professional and political groups watching closely as pharmacists in Washington and Iowa demonstrate the impact of cognitive services on health care outcomes. Hats off to pharmacists and pharmacies participating in this landmark project!

CARE TALK

Need Any Supplies?

We will regularly supply you with disks and paper transmittal forms. If ever you run low, though, just give us a call (toll free) at 1-800-801-9076, or drop us a note at The Pharmacist's CARE Project, University of Washington School of Pharmacy, SC-69; Seattle, WA 98195.



Keep Those Cards and Letters Coming!

Your questions and comments about the CARE Project help us to understand the study from your perspective. If you have an idea for streamlining operations, let us know! Questions about procedures, or how to handle unique situations will be answered promptly. And let us know, too, about your most "interesting" cognitive service experiences! Have you felt the satisfaction of an intervention that clearly made a difference? Do you have an amusing anecdote to share? We'll publish the best of these in upcoming editions of CARE TALK

CARE TALK

Number 3

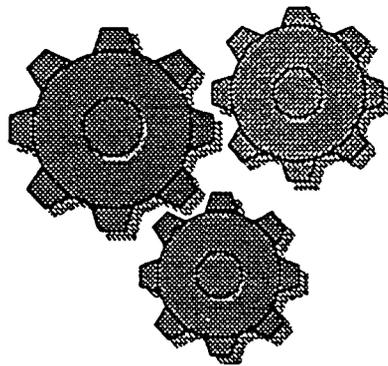
June 1994

COGNITIVE ACTIVITIES AND REIMBURSEMENT EFFECTIVENESS

Education: Always Continuing

A Continuing Education program about the C.A.R.E. Project will be presented at the SeaTac Red Lion on June 19, 1994, in conjunction with the Washington State Pharmacists Association (WSPA) annual meeting. The program, entitled "Taking Control of Pharmaceutical Care," will be conducted by Amber Andrews, R.Ph., MPH, and Rod Shafer, R.Ph., and will include an overview of the C.A.R.E. Project as well as an update of the project's progress to date.

Participating project pharmacists are encouraged to attend this session to contribute their perspectives about the study--or even just to listen! If you are not already a project participant and would like to become one, or if you would simply like to obtain more information about the project, put this session on your calendar for the 19th. For information about attending this, and other continuing education programs and events, contact the WSPA at (206) 228-7171.



Sometimes the Gears Grind Slowly

Please bear with us. Every C.A.R.E. Pharmacy has been promised, and will be paid a \$40 per month stipend for their study participation. Once again, we sincerely apologize for the delays and frustration that we are all enduring over this matter.

Here's what happened. It wasn't until the end of April that the problem became apparent. It took some doing, but payment delays were eventually traced to administrative errors at the State. In a Rube Goldberg-like sequence, one thing led to another, and the situation got worse when we thought it was getting better. That's the bad news.

The good news is that C.A.R.E. Investigators and DSHS have been attending to the situation personally and, indeed, have made demonstrable progress. As this newsletter goes to press, 93 pharmacies have been brought up-to-date on their stipend payments. The remaining payments are being hand-walked through the system in a concerted effort to fix this problem once and for all.

Over 2,000 Strong!

In just the first few months of data collection, the C.A.R.E. Project has logged over 2,000 cognitive service documentations into its database. It's a good beginning.

"Our experience to date has been that some C.A.R.E. pharmacies have a greater volume of cognitive services than others, and that the numbers of documentations change from month to month," says Bill Fassett, Ph.D., one of the C.A.R.E. Project Investigators. Adding, "that's to be expected."

Sometimes you just won't have the time and/or the opportunity to perform cognitive services. If in a particular month you find that you have no cognitive services

documentations to submit, just indicate "zero" on your monthly transmittal form to the UW and send it in.

While there may not be a high volume of cognitive services in your pharmacy, taken collectively the nearly 200 participating pharmacies generate a lot of data each month--data that have the potential to make a lot of difference for the way pharmacy is practiced in years to come.

Don't Forget...

to send in your monthly cognitive service documentation to the University of Washington, and your payment vouchers to DSHS!

Do cognitive services this month? Just indicate zero on the transmittal form and your total prescription volume for the month and send it in.

QUESTIONS? Call us, toll free 1-800-801-9076

The Pharmacists CARE Project
Caring, Accurate, Responsive, Efficient

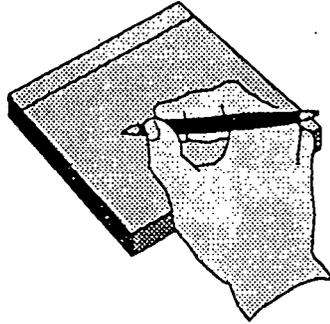
New Cards on the Block

It was May when the elephant first made his appearance. Designed to be a quick reminder about sending in cognitive services data, postcards like this one (there are 4 designs in all) will be sent out monthly to all C.A.R.E. pharmacies as a routine part of our data collection effort.

In addition to the postcards, some of you have received letters in the past month or so asking for clarification on one or more cognitive service documentations that have been sent to the UW. "It's housekeeping for our database," says Nancy Neil, Ph.D., C.A.R.E. Project Coordinator. "By making sure the data are entered accurately and completely

as we go along, we're making an investment in the integrity of our database that will pay off when the data are analyzed," she said.

Many thanks to all of you who have been so responsive!



Rx. Notes

Q: I received a prescription from a doctor who wrote for hydrocortisone lotion, 2%, for a 2-year old baby. I called to ask if the doctor wanted 1% Lotion, or a compounded 2% lotion. Since there is no 2% hydrocortisone lotion I can't give you an NDC number for the originally prescribed drug. What should I do?

A: Since the original script called for a product that is unavailable, naturally there will be no NDC number for the drug prescribed.

In cases like this it is appropriate to enter all 9's in the NDC code data field, and indicate in the "comments" section of the documentation that the original script called for a compounded drug.

Q: I had a situation in which two doctors prescribed Delestrogen injectable, and when I called to ask about strength, each doctor referred us to the other one. After two calls to each doctor and 20 minutes later, we finally told one of them to

CARE TALK

make a decision. Thus, the original prescription had no NDC number. How do I code this cognitive service?

A: There appear to be two issues here: first, the issue of obtaining clarification about drug strength, and second, the issue of duplication of therapy.

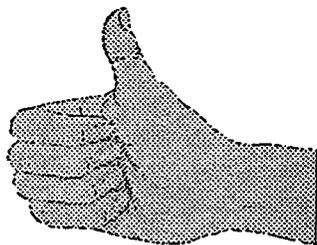
The first problem, obtaining information about prescribed drug strength, is a prescription clarification, not a cognitive service, so no coding is required.

Addressing the second problem, duplication of therapy, is a cognitive service, and would be coded as follows: therapeutic duplication (problem code 11); consult prescriber by telephone (intervention code 10); do not dispense (result code 22). In this case the prescribed NDC number would be the NDC number from the Delestrogen prescription that was filled (after the prescribed strength was clarified).

Yes, We're Still Open!

For those of you who have inquired-yes, enrollment in the Pharmacist's C.A.R.E. Project is still open, but only until the end of this month.. Our last enrollment wave is slated to close on June 30, 1994. If you are interested in becoming a C.A.R.E. Project pharmacy, call (206) 543-6788, or (800) 801-9076 (toll free) for enrollment materials and Further information. If you know of someone who may be interested in participating, pass the word along that there is still an opportunity to become involved!

CARE TALK



Additional Funding!

We have recently received word from the Health Care Financing Administration (HCFA) that additional funds have been allocated for community pharmacies involved in the CARE Demonstration Project!

HCFA has expressed a great deal of interest in the impact of cognitive services on the cost and outcomes of pharmaceutical care, so much so that they have agreed to fund an extension of the CARE Project's data collection period through September 1995. This means an additional \$320 for each pharmacy participating in the study, plus any State payment for cognitive service documentations under current arrangements.

In order to make this happen, DSHS requires that a contract amendment be filed for each participating pharmacy. The necessary paperwork has been mailed to each CARE site. We ask your cooperation in signing and returning all three copies of this amended agreement at your earliest convenience, and returning them

to the UW. DSHS will process the amendments, and will return to you one of the signed originals for your files.

The contributions of each of you to this project have the potential to make a demonstrable difference in the practice of pharmaceutical care nationwide. In fact, less than 3 years from now the U.S. Congress is expecting to receive a report about viable mechanisms for paying pharmacists for their services, and undoubtedly the results of the CARE Project will be looked to as that report is prepared. Your efforts are valued, and much appreciated.

Cognitive Services & Managed Care

As Medicaid moves from fee-for-service to managed care, the question of payment for cognitive services takes on a new meaning. A recent article in *American Pharmacy* (Vol. NS34, No. 6, June 1994) looked at efforts to charge patients or obtain third-party reimbursement for cognitive services. Although these efforts are still in their early stages, some pharmacists have made progress obtaining reimbursement

Pharmacists from all across the country are eagerly anticipating the results of studies demonstrating the impact of pharmacists' Interventions

on health care costs and patient outcomes, including the CARE Project.

According to Garth Holmes, R.Ph., Medicaid wants to encourage pharmacies to become skilled in the documentation of cognitive services so that they will be maximally prepared if marketplace changes are implemented.



Stipend Vouchers

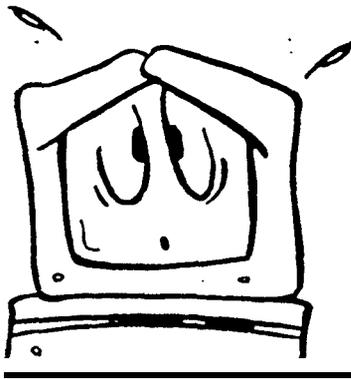
Every month of their participation in the CARE Project, all pharmacies are entitled to receive a \$40 monthly stipend from DSHS. For purposes of these monthly stipends, participation is defined as notifying the UW of your cognitive services activities each

month, even if **you** have no **cognitive service documentations** to send in (In other words, sending a **transmittal form** notifying us that you have **no cognitive documentations** to send qualifies fully as study participation.) It's informative for us to know when you have, and have not been able to document cognitive services in your practice!

When this study began, we asked each **pharmacy** to send their cognitive services documentations to the UW, and their stipend vouchers to DSHS. Experience proved the system to be problematic on a number of dimensions.

To improve the situation, we ask that you submit DSHS stipend vouchers to the UW along with your monthly cognitive services documentations.

Vouchers received at the university together with data can be cleared for payment immediately. Any vouchers received by DSHS must be forwarded to the UW for clearance (vouchers are cleared for payment when data have been **received**), and then sent back to DSHS for processing all of which adds to the time it will take for your stipend check to get to you.



Flopped Floppies?

Those of you who use the Stotler program to document your cognitive services have no doubt heard about this development. It seems that some

documentations are falling through an unfortunate gap in the system and are not making it from the pharmacies' computers into the main database at the University.

These documentations represent far too much effort on your part, and are **far** too valuable for any losses to be taken lightly. Fortunately, though, we caught **the** problem early enough that we should be able to recoup most, if not all of the missing information.

Each pharmacy using the Stotler program to document cognitive services has been asked to create a cumulative file, or "Re-Run Disk" of all the interventions entered on their computers since the beginning of the project. This comprehensive file will be compared with data on-hand in the University database in order to ensure that all documentations are accounted for.

While all this is going on, we'll be paying extra special attention to documentations sent in on disk via the Stotler program. If you use the Stotler program, you can **help** us **considerably** by doing three things. First, indicate on your monthly transmittal form how many cognitive services you documented at your **pharmacy**, so we'll know how many to check for on the disk we receive.

Second., use the "report" option within Stotler's program to print out 3 paper summary of your monthly **documentations** and send that in with your computer disk. Again, this **gives** us a means of checking to make **sure** the disk has recorded your site's activities accurately and completely.

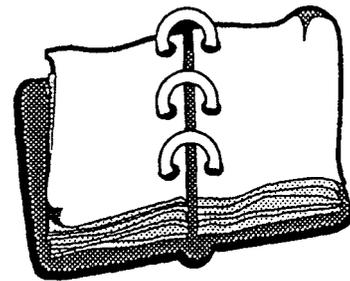
Third (and perhaps most **importantly**), **don't refresh your database!** refresh" option in Stotler's program effectively erases all computer-stored record of your **documentations**, rendering them **permanently** irretrievable. If you **must** refresh (because of limited **computer** memory, for example), **make** sure to run a paper **report of**

your cognitive services activities beforehand and keep the summary in your files in case it's needed for reference.

"Initial", Concerns

When using paper documentation forms, **especially**, please make a special effort to print your initials legibly in the "R.Ph. Initials*" field on the form.

"The tendency has been for pharmacists to record their initials on paper documentations as if they were signing a prescription," says Dave Smith, **R.Ph.**, research associate on the CARE Project, "but the reality is that each letter has to be entered directly into the database, and it's often hard to decipher the individual letters of each pharmacist's stylized signature."



Mark Your Calendars!

A second round of training for all CARE participants began this fall. Rod Shafer, **R.Ph.** and Amber **Andrews, R.Ph.** are again traveling to major cities statewide to update pharmacists about the project, provide an overview of results to date, and review processes.

procedures, **and** tips for documenting cognitive services. There will also be time to ask questions, and to share and discuss problems and experiences' to date.

The training sessions began in October, and should all be completed by the end of November. Each of you will be contacted directly about the session scheduled for your area; watch for the information (see program schedule outline on page 4).

If you have any questions about these sessions, feel free to call Amber Andrews at (206) 543-6788, or toll-free at 1-800-801-9076. We'll look forward to seeing you!

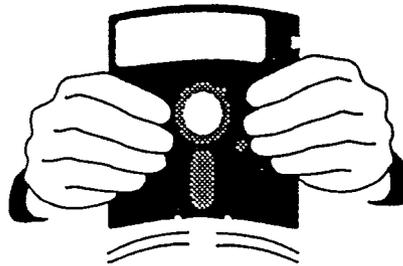
No Data?

Of the 200 pharmacies enrolled in CARE, **only** about 80% have turned in any cognitive service data at all since the study began. We haven't heard from the other 20%, even to tell us that they have had no cognitive services to report!

Naturally we expect that interventions and cognitive services will **differ from** pharmacy to pharmacy, and even from month to month. We also expect that there will be months in which you do not have the opportunity to perform any cognitive services (in that case you should enter "0" for the number of documentations on the transmittal form and their total prescription volume for the month, and send it **with** your voucher to the UW).

CARE is a demonstration project being conducted in real world pharmacies in which many outside factors can (and do!) **affect** a pharmacist's ability to perform and/or document cognitive services. In fact, one of the goals of this project is to identify some of these barriers to a pharmacist's ability to perform and document cognitive services in practice settings.

If you don't have the opportunity to perform any cognitive services for DSHS patients in a particular month, or if you are too busy (or understaffed, or whatever) to document the cognitive services that you do perform, send in a transmittal form at the end of the month anyway, and indicate "0" for the number of documentations you had. Then tell us why. It's all information that is valuable to the study. And remember, your principal obligation as a study pharmacy is to report your cognitive service documentation experiences each month, even when that means indicating that you have no documentations to report.



Need Any Supplies?

All project-related supplies are available to participating CARE pharmacies at no charge. This includes monthly transmittal report forms, paper documentation forms, floppy disks, postage-paid return envelopes and floppy disk mailers, as well as DSHS stipend vouchers.

We've included a supplies order form with this newsletter for your convenience. But don't feel that you **must** use this form; just let us know by phone, fax, or even just a scrap of paper if you need anything. We'll send the supplies out to you via return mail as soon as we are able, usually within 48 hours of receiving your request.

How would you have coded these?

Q: The other day, a doctor asked me for prescribing advice on an infant with enema. How should I code the situation in which a doctor asks me for advice?

A: After some discussion, the project team decided that the most effective way to code this intervention would be to use Problem code 29 (DRUG: Other specific problem), Intervention code 10 or 11 (CONSULT Prescriber), and Result code 02 or 05 (ADD drug therapy). It would also be helpful in this situation to indicate in the Comments section that it was the *prescriber who* asked you for advice.

Q: I have prescriptive authority to make some kinds of prescription changes or additions. How should I code cognitive service interventions in which I make changes using my prescriptive authority?

A: The most informative coding for this situation would be to use Intervention code 11 (CONSULT prescriber in person), **with** the idea being that you consulted *yourself* as the person with authority to prescribe. It could also be argued that you, in effect, have *already* consulted the prescriber (as evidenced by having obtained prescriptive authority) and are simply acting on this previous consult. **Again**, it's informative to us if you note in the Comments section when an intervention was done with prescriptive authority

Q: Several of my patients are on Clozaril. I routinely review their lab work for any neutropenia before dispensing refills. How should I code this **cognitive** service?

A: The scenario presented here is pertinent not only to Clozaril, but to any **number** of other drugs (such as **ganciclovir**) which also require lab monitoring. Perhaps the best way to code these cognitive services is to use Problem code 26 (**ADR: Preventable**), Intervention code 51 (**REVIEW: Laboratory tests**), and whatever Result code is appropriate to the situation (for example, DAW or Do Not Dispense).

Once More on Medisets

Decisions about whether the filling and refilling of Medisets (or similar compliance-enhancing containers) can be documented as cognitive services continue to generate questions from participating pharmacies. Admittedly, the CARE Project **"rules"** covering Mediset questions have been somewhat confusing. Hopefully the following information will help to clarify things.

Originally, the filling of Medisets (or like containers) were considered to be cognitive services when the service was (1) done for case managed patients, or for a (potential or actual) drug-related compliance problem; (2) performed in connection with other compliance-enhancement instruction given to patients. and (3) performed in connection with the initial dispensing of a prescription.

During discussions with CARE pharmacists at the annual WSPA meeting last summer and on other occasions, several pharmacists called

to our attention that they serve special patient **populations** at high risk of noncompliance who are in need of **assistance**. Examples include some elderly and mentally retarded patients, especially those in board and care **facilities**, who need devices and/or instruction to assure optimal levels of compliance. Many, if not most, of these patients cannot load prescription **refills** into Mediset containers without assistance **and**, in fact, may even have difficulty identifying others to do so for them. Pharmacists serving these patients state that they often will refill prescriptions in Mediset containers for this population without reimbursement as a public service because of the potential for noncompliance.

Because of this, **we** have liberalized our thinking about Medisets as they relate to cognitive services. **Specifically**, we have *eliminated part (3)* of the original Mediset rule, that is, that to be considered a cognitive service, filling the Mediset must be linked with the initial dispensing of a prescription.

Now, services related to the filling of Medisets or like containers are to be considered cognitive services for purposes of the CARE Project whenever the service is performed for a patient with a clear pattern of, or clear potential for noncompliant behavior.

In other words, you can, and should document a cognitive service whenever you fill or refill a **Mediset** for compliance-related reasons. Note that the Mediset service must be provided in connection with other compliance-related activities, such as ascertaining past compliance and encouraging compliant behavior in the future.

FALL 1994 TRAINING PROGRAM : TENTANE LOCATIONS AND DATES

Most sessions **will** be scheduled for early morning, and **will last** about 1.5 hours **including** a question and answer period.

Pharmacies **will be notified individually** of the exact time and date of the training session **nearest to them**.

- Oct. 25** Wenatchea
- Oct. 26** Yakima; Spokane
- Oct. 27** Spokane; Richland
- Nov. 1** Tacoma; Seattle
- Nov. 2** Olympia; Vancouver
- Nov. 3** Battle Ground
- Nov. 8** Kent
- Nov. 9** Kent; Aberdeen
- Nov. 15** Everett; Bremerton
- Nov. 16** Monroe; Sequim
- Nov. 17** Seattle
- Nov. 21** Bellingham

QUESTIONS? Call Amber Andrews, R.Ph. at (206) 543-6788

CARE TALK

Number.5

February 1995

COGNITIVE ACTIVITIES AND REIMBURSEMENT EFFECTIVENESS

The Home Stretch!

F ebruary starts the extension period of data collection for the CARE Project, slated to continue through September 1995.

Last fall **we** announced HCFA's intention to fund an extension of the CARE Project's data collection period beyond the original January 1995 cut-off date. This means an additional \$320 for each pharmacy participating in the study, plus any State payment for cognitive service documentations under current arrangements.

Since the announcement of the study's extension, representatives of nearly all participating sites have returned contract amendments indicating a willingness to continue their involvement in the project. This overwhelmingly positive response is testimony to the dedication that each of you has shown to this effort.

The project is going strong In 1994 **we** logged in some 8,000 cognitive service documentations to the CARE database, and more are arriving every day. "We hope to maintain the momentum!" says Dale Christensen, Ph.D., principal investigator for the study.



Track Your Time...

“R ecording the actual time you spend on each cognitive service intervention is critically important” reminds Dave Smith, R.Ph., research associate on the CARE Project.” One of the goals of this study is to establish a solid basis for the reimbursement of cognitive services, and time is the unit around which’ payment is based.

“Some interventions, by their nature, are going to take longer than others,” explains Smith, “and that difference should somehow be reflected in the way **we** reimburse pharmacists for their time.”

Part of the value of the CARE database will be to document the real time commitment pharmacists make when performing cognitive services on their patients’ behalf.

DSHS Now Pays for Compliance ‘Devices

T he DSHS now authorizes reimbursement to all pharmacists for dispensing medications in Mediset containers.

A memo put out by DSHS late last year describes the details. In essence, **DSHS** will now reimburse pharmacists \$6.00 for each Mediset container they distribute, up to two containers per year for each eligible patient. **“This** payment is for the *containers* themselves, not for the filling of the containers,” notes DSHS’ Garth Holmes, R.Ph., **“and** the payment is independent of the CARE Project.” The new policy applies to all pharmacists in the State of Washington, not just **CARE** participants.

The new DSHS policy does not impact CARE study guidelines regarding the *dispensing* of medications in **Mediset** containers. The filling of Mediset containers pursuant to a potential or actual compliance problem is still a documentable cognitive service for purposes of the **CARE** study.

Reimbursement for Mediset containers is an important policy change for DSHS in that it recognizes noncompliance as a health care problem as well as the importance of compliance enhancement devices and pharmacists' services in its resolution.

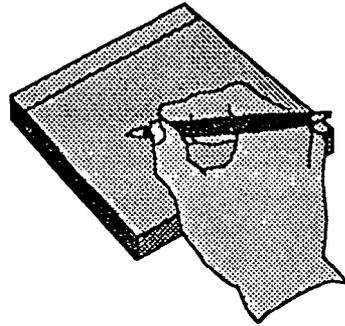
Some Disks Still Problematic

Those of you who use the Stotler program to document your cognitive services know that we have experienced some problems with transferring data from the pharmacies' computers into the main database at the University. Through an internal audit last fall we were able to recapture the vast majority of the data. Since then the problem has abated; however, some sites are continuing to experience transmission problems.

What happens is that some documentations don't make it from the pharmacy's computer to the floppy disk used to send them into the main database. The documentations are not erased--they remain in the pharmacy's computer--but because they aren't on the floppy disk they don't get added to the larger pool of documentations housed at the University.

If your site is continuing to experience problems downloading cognitive service records from the Stotler program on your computer to a floppy disk for transmission to the University, there are essentially two options. First, we can have Bob Stotler contact you directly to try to correct the problem. Or, your site might consider switching from computer documentations to

paper forms. Just give us a call; we'll be happy to help you in any way we can. These data are important.



Rx Notes

Q: I received a prescription from a doctor who wrote to change from Depakote 500mg tid to Depakote 675mg tid, which is not possible without using syrup. I contacted the doctor, who agreed to make the dose 625mg instead, and I added 125mg tablets to the patient's existing 500mg regimen. I coded this cognitive service as 04 (suboptimal dosage form), 10 (consult MD by phone), 02 (add Rx drug therapy), but it was rejected by DSHS for payment. Why?

A: Because the 04 (suboptimal dosage form) problem code and the 02 (add Rx drug therapy) result code weren't "logically consistent" according to the CARE coding rules.

According to the coding rules, a suboptimal dosage form problem could be addressed "logically" by changing the form somehow (change to drug of choice); making a decision that the form was OK (D.A. W.); or by making a decision that the form was not OK (e.g., do not dispense, or referral).

The situation you describe could be coded 03 (suboptimal dosage regimen); 10 (consult provider by phone); 11 (change dose).

CARE TALK

Q: I have a group home patient who is tapering off Paxil and gradually increasing trazodone. I prepared individually labeled bottles with correct sig. for each step in the taper (and increasing dose) for compliance purposes. How do I code this?

A: One way would be to use problem code 28 (complex administration); intervention code 32 (patient training); and result code 90 (D.A.W.), since the special instructions you prepared were, in essence, training materials for the patient to enhance compliance with the regimen prescribed.

Fall Training Complete

Our thanks to all of you who took the time to attend one of the training sessions held in various locations throughout the state last fall!

Session topics included and interim report on study results to date; updates of changes in documentation procedures since the study's inception; and a discussion of tips for identifying drug-related problems and overcoming barriers to the provision of cognitive services in day-today practice.

If you were unable to attend... one of the training sessions but would like to receive the handouts that were distributed, give us a call and we'll be happy to send you the materials.

And at any time if you feel you need help or extra on-site training just let us know and we'll see to it that your needs are addressed

CARE TALK

Number 6

June 1995

COGNITIVE ACTIVITIES AND REIMBURSEMENT EFFECTIVENESS



Nearing the Top!

In just a little over three months from now data collection for the C.A.R.E. Project will be completed. "We'll be collecting documentations through the end of September," says Dave Smith, R.Ph.. "Once all the data are in we'll start pulling together the analyses--and that's the part everyone has been waiting for!"

The project is going strong. To date we have logged in upwards of 10,500 documentations to the CARE database, and more are arriving every day. "Everyone has put a great deal of effort into this project," says Dale Christensen,

R.Ph., Ph.D., "and it shows." Our thanks to all of you for working to make this project a success!

Survey Scheduled

By the time this newsletter arrives, many of you will have already been contacted by Abt Associates, Inc., a research company located in Cambridge, MA. Abt Associates has been selected by HCFA as an external evaluator for their Medicaid Drug Use Review Demonstration Projects, of which the C.A.R.E. project is one arm.

In collaboration with the C.A.R.E. project team, Abt Associates will be administering a mail questionnaire to all participating C.A.R.E. sites in order to assess pharmacists' perceptions and attitudes toward cognitive service and drug use review activities.

"Your cooperation with this effort will help us better understand whether, and under what circumstances, cognitive service activities are effective in Washington State," notes Dale Christensen, Principal Investigator for C.A.R.E.

Abt Associates plans to field the surveys in June. Two types of surveys will go out to each pharmacy site. One form is to be completed by the pharmacist-in-

charge, and the other is intended for staff pharmacists working at least 20 hours a week in each store.

If you have any questions about this survey now, or after you've received your copy, feel free to contact Frank Tsai at Abt Associates 1-800-709-7780, or any one of us at the C.A.R.E. project.

Healthy Options Update

As of the date of this newsletter, the managed care program for the State Medicaid "Healthy Options" plan has stabilized with an enrollment of approximately 350,000 clients and 23 different health care plans. These clients are primarily members of young families enrolled in the Aid to Families with Dependent Children (AFDC) program. Of the 23 health care plans, 19 will be paying for the drug benefit. Clients remaining on fee-for-service will continue to have their prescriptions paid for by DSHS.

"Healthy Options" plans to expand the number of enrollees in Clark County in September 1995 by adding clients who are receiving Supplemental Security Income (SSI). SSI clients in other counties will be included over several

months following Clark County. More clients from other eligibility programs will be added over time until most of the Medicaid population has been converted to managed care.

Remember to document cognitive services performed on behalf of Healthy Options patients the same as you would for any other DSHS patient!



Cumulative Top Ten

Ten C.A.R.E. pharmacies deserve special recognition for their consistent performance in the C.A.R.E. project. Pharmacists at these sites alone have submitted more than 4,400 documentations to the C.A.R.E. database. 'Great job! A round of applause for:

Carson Drug, Inc.

Clarke's Drug

Farrell's Eastwood Pharmacy

Mega Save Rite Pharmacy

Northaven Pharmacy

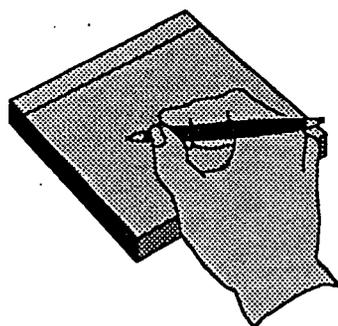
Providence Community Pharmacy

Skagit Valley Pharmacy

Thrifty Foods Pharmacy

UWMC Outpatient Pharmacy

Yakima Memorial Hospital Pharmacy



Rx Notes

Q: How do I code (if at all) the following? Patient came in with prescriptions for Tussi Organidin DM, Entex LA, and SMZ/TMP DS. Tussi Organidin has been withdrawn from market so I called the prescriber and substituted generic Robitussin DM. Entex LA is not covered by Medicaid, so I got the OK to use pseudoephedrine 60mg qid. I talked with the patient and explained the differences between pseudo and Entex LA; patient decided to get Entex LA and pay for it.

A: This situation could generate two cognitive service documentations. For the first, use Problem Code 01 (*suboptimal drug*, meaning Tussi Organidin), Intervention code 10 (*consult prescriber*), and Result code 01 (*change to drug of choice*, meaning Robitussin DM). The second documentation would be Problem Code 01 (*suboptimal drug*, meaning Entex LA), Intervention code 10 (*consult prescriber*), and Result code 22 (*do not dispense*, referring to the dispensing of Entex LA to a Medicaid recipient). This would alert us during analysis that the Medicaid program was, in essence "saved" the cost of this prescription.

Note, however, that *not* dispensing a non-covered drug to a Medicaid recipient is considered a cognitive

service only if a pharmacist does so after having contacted the prescriber.

CS Activities Report

“Overall, the cognitive service claims code we receive most frequently is 28-32-90 (*Drug: complex administration; patient training; dispense as written*),” says Robert Hansen, Pharm.D., research associate on the C.A.R.E. Project.

Individually, the most commonly reported “problems” reported to C.A.R.E. have involved *case managed patients, drugs with complex administration, and sub-optimal drugs*. The most frequently reported interventions have included *consult prescriber* by phone or fax, and *patient training*. And, though *dispense as written* seems to be the most frequently reported result of cognitive services, about 4 in every 10 cognitive services submitted indicate some type of drug therapy change!

Watch for Them!

Individual pharmacy summaries of cognitive service activities recorded in the C.A.R.E. database are in preparation now, and scheduled to be sent out sometime during the month of June.

Some pharmacies can also expect to receive Correction Forms soon for documentations they've submitted about which we have questions.

Watch for them!

CARE TALK

Number 7

September 1995

COGNITIVE ACTIVITIES AND REIMBURSEMENT EFFECTIVENESS

Data Collection Ends This Month!

September 30, 1995 is the last official day for data collection on the C.A.R.E. Project. Cognitive services performed up to and including September 30 should be documented and sent in as usual. (Interventions performed after that date can't be added to the UW database, but see the next article: DSHS payment for cognitive services will continue!)

Please remember to send your documentations for September and for any other months of the study to the UW as soon as possible. "We are hoping to be able to complete the database by the end of October," says Dave Smith, R.Ph., "because we only have six months for data analysis."

Indeed, our final report for the project is due to HCFA by March of next year. Already we've logged in nearly 17,000 cognitive service records since the study began, and every record is an important part of the picture. We are excited to have come to this point in the project.

The results of all of your many efforts will doubtless become apparent as these data are merged and analyzed. Again, our thanks to all of you for working to make this project a success!



Payment to Continue After Study Ends

Enclosed with this newsletter is a one-page

announcement detailing the DSHS decision to continue paying for cognitive services performed by pharmacists involved in the C.A.R.E. Project at least for an interim period after the study's end.

Though the final results of the C.A.R.E. Project won't be available until March of next year, preliminary findings suggest that the program will be a success. On that basis, the DSHS has agreed to continue to reimburse all C.A.R.E. pharmacies for cognitive services for an interim period beyond the end of data collection for the study.

For purposes of the study, only Group A pharmacies were eligible for payment by DSHS for the interventions they performed. For this interim period, however, the offer of payment for cognitive services is being extended to Group B as well.

"Some Group B pharmacies have diligently documented cognitive services without reimbursement for as long as 18 months," notes Dale Christensen, Ph.D., Principal Investigator for the C.A.R.E. Project. Christensen and Garth Holmes, M.A., R.Ph. (also a principal investigator on the project) championed the idea of continuing reimbursement. "They more than deserve an opportunity now to receive some benefit.**"

- Appendix I: CARE Supply Order Forms


The Pharmacist C.A.R.E. Project
 Cognitive Activities & Reimbursement Effectiveness

C.A.R.E. SUPPLIES REQUEST

All project-related supplies available to participating pharmacies at no charge

ITEM	HOW MANY?
Transmittal Report Forms <i>Half-sheet form that is included with each month's paper or disk documentations, on which you record the month the documentations pertain to, and the total # prescriptions filled for that month.</i>	_____ f o r m s (1 form used per month)
Paper Documentation Forms <i>Pads of two-part, carbonless paper forms for documenting cognitive service interventions</i>	_____ pads (about 50 forms per pad)
3 1/2" Floppy Disks <i>Cognitive services documented on-line via the Stotler (or Lloyd) program are downloaded monthly onto a computer disk and sent to the University of Washington.</i>	_____ 3 1/2" disks (usually 1 disk per month)
5 1/4" Floppy Disks <i>Cognitive services documented on-line via the Stotler (or Lloyd) program are downloaded monthly onto a computer disk and sent to the University of Washington</i>	_____ 5 1/4" disks (usually 1 disk per month)
9 x 6" Business Reply (Postage Paid) Envelopes <i>Used to send paper cognitive service documentations and \$40 DSHS monthly stipend vouchers in to the University on a monthly basis. Also used to return Requests for Data Corrections to the University, and for other CA&E-related correspondence.</i>	_____ envelop es
Business Reply (Postage Paid) Floppy Disk Mailers <i>Used to send \$40 DSHS monthly stipend vouchers and cognitive service documentations recorded on computer disk to the University on a monthly basis. May also be used for other C.A.R.E.-related correspondence involving the transportation of computer disks.</i>	_____ mailers
DSHS Monthly Stipend Vouchers <i>DSHS claim form used for the \$40 monthly stipend that all participating C.A.R.E. sites are eligible to receive. Form is to be submitted monthly to the University, along with cognitive service documentations</i>	_____ vouchers (1 form used per month)
Other please specify:	

SEND TO:

Pharmacy Name, Address (May Use Stamp):



Phone, FAX, or mail your request to the U.W. CARE Project:

1-800-801-9076 Phone
 (206) 685-9615 FAX

Orders **will** be processed within 48 hours of receipt!

Appendix J: Sample Pharmacy Feedback Report



 The Pharmacist **CARE** Project

 Cognitive Activities & Reimbursement Effectiveness

Center Pharmacy

NUMBER OF COGNITIVE SERVICES RECORDED IN CARE DATABASE, BY MONTH (1)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP.	OCT	NOV	DEC
1994	10	8	10	7	12	10	4	1	1	1		

MOST COMMON COGNITIVE SERVICE REPORTS RECEIVED FROM THIS PHARMACY

Problem	Code	Cases Reported
<i>Suboptimal Dose</i>	02	12
<i>Drug Therapeutic Duplication</i>	11	8
<i>Suboptimal Dosage Regimen</i>	03	7
<i>Patient Communication Difficulty</i>	3 3	6
Intervention	Code	Cases Reported
<i>Consult Prescriber Phone/Fax</i>	10	44
<i>Consult Patient</i>	30	10
<i>Consult Prescriber In Person</i>	11	5
<i>Patient Training</i>	3 2	3
Result	Code	Cases Reported
<i>Dispense as Written</i>	90	12
<i>Change Dose</i>	11	11
<i>Counsel Patient</i>	30	9
<i>Change Dosage Regimen</i>	12	8

MOST COMMONLY INVOLVED DRUGS...

...for prescription-related problems (Problem Codes 01, 02, 03, 04, 05, 06)

NDC	Drug Name.	# Reported
000053898	<i>SUPRAX</i>	3
003647212	<i>TRIAMCINOLONE ACETONIDE</i>	2
006770695	<i>ACETAMINOPHEN</i>	2

...for drug interaction and adverse reaction-related problems (Problem Codes 1, 21, 22, 23, 24, 25, 26, 27, 28, 29)

NDC	Drug Name	# Reported
001490436	<i>ENTEX LA</i>	2
000747079	<i>VERO-FOLK-500</i>	2
00781149s	<i>PREDNISONE</i>	1

...for patient-related and other problems (Problem Codes 31, 32, 33, 34, 35, 41, 42, 90)

NDC	Drug Name	# Reported
000390052	<i>DIABETA</i>	2
504580220	<i>NIZORAL</i>	1
006770063	<i>DIPHENHYDRAMINE HCL</i>	1

Appendix K: *Coordinator C. A. R. E.*

COORDINATOR C.A.R.E.

July 1994

Taking the time to C.A.R.E.

We all know the practice of pharmacy is changing rapidly. Pharmaceutical care services are currently receiving strong support from pharmacy associations, various state and national politicians, and even some third party payors. Pharmacists who provide pharmaceutical care services, such as cognitive services, play a vital role in decreasing overall drug costs, improving health outcomes, and avoiding the downstream effects associated with suboptimal drug therapies.

There are precious few studies designed to show the value added by pharmaceutical services. And that's one reason the Pharmacists' C.A.R.E. Project is so important. Policymakers at all levels are watching CARE. as well as a handful of other studies nationwide as they attempt to demonstrate the value of pharmacists' contributions to improving health outcomes and containing costs. The results of these studies will play a major role in determining the structure of pharmacy practice in the coming years.

We have a very small window of time in which to demonstrate what pharmaceutical services can do to impact the health care dollar. If pharmacists are to alter the reimbursement mechanisms of the 'future, it's critical that we document the importance of our services today. Many pharmacists think that they don't have the time to document, but the truth is that if they don't *take* the time, the value of their contributions may never be recognized.



A Network to Promote Teamwork

As an Area Coordinator, your job is to set the example that will remind pharmacists involved in CARE. how extremely important cognitive services and their documentation are. You are our

advocates, not only for the project, but for the profession, and for the value inherent in tapping pharmacists' specialized expertise. Area coordinators throughout the state form a vital network linking together all the pharmacies in this project.

Through you, we also gain valuable information about the progress of this demonstration. Your suggestions to improve communications, documentations, and administration have helped us learn how to make the system more responsive to pharmacists' needs.

You will be receiving the first of two payments for your participation as Area Coordinators in the next few weeks. In all, you will be paid \$30 for each pharmacy that you supervise, including your own (half now, and half at the end of the study). It's a token of our appreciation for the effort you put into keeping pharmacists in your area informed and motivated about C.A.R.E.

Maintaining Connections

Your most important job as an Area Coordinator is to stay in touch with the pharmacies you are supervising. We hope by now you have contacted all of your "constituent" pharmacies at least

C.A.R.E., only about 70% have turned in any cognitive service data at **all** since the study began. We haven't heard from the **other 30%**, even to tell us **that** they haven't performed any cognitive services!

Naturally we **expect** that interventions and **cognitive** services will differ from pharmacy to pharmacy, and even from month to month. We also expect that there **will** be months in which a pharmacist does not have the **opportunity** to perform any **cognitive** services (in that case they should **enter "0"** for the number of documentations on the transmittal form and their total prescription volume for the month, and send it **with their** voucher in to the UW).

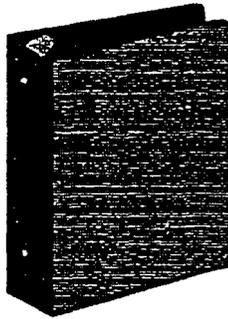
With **this** newsletter we are enclosing for each of you a list of the pharmacies that you are supervising. We have **placed** an asterisk by the names of the pharmacies in your area from whom we have not received **any** data since the study began. We would appreciate it if you would make it a point to contact these pharmacies to get a sense of what their situation is.

The pharmacists we have talked with already have said they are too busy to document their cognitive services, or are understaffed, have had to **make** too many phone calls with the Supplemental Rebate Program, have experienced pressures **from** other **third** party payors, and so on. These problems are real ones, and ironically they are testimony to the importance of this project.

C.A.R.E. is a demonstration project. It is being conducted in **real** world pharmacies in which many outside factors can (and do!) **affect** a pharmacist's ability to **perform** and/or document cognitive

services. In fact, one of the goals of this project is to identify some these barriers to a pharmacist's ability to **perform** and document cognitive **services** in practice settings.

If a pharmacist is too busy (or **understaffed**, or whatever) to perform any cognitive services, he or she should send in the transmittal form anyway, indicating **"0"** for the number of documentations. Then tell us why. It's all **information** that is valuable to the study.



See you in September!

A second round of training for C.A.R.E. participants is slated to begin in September. Rod Shafer and Amber Andrews will again be traveling to major cities statewide to update pharmacists about the project, provide them with an overview of **results** to date, and **review** processes and procedures. Additionally, a segment on how to identify **opportunities** for cognitive services **will** be presented, and there will be time to share and discuss problems and experiences **to** date. Look for more information about **these sessions** in the near future!

COORDINATOR C.A.R.E.

Coming Soon to an Area Near You!

We will soon be seeing some new faces among the participating C.A.R.E. pharmacists! **We** have received a surge of requests from pharmacies who are interested in participating in C.A.R.E. Indeed, we are still accepting applications for new sites, so please spread the word and join us in welcoming our new participants as they come on board!

As we bring these pharmacists on board we may **need** your help with some **local** training. We will provide **all** of the materials necessary to get these new sites started, but we may also contact you to visit with any **new** pharmacies assigned to your area to help ensure that they get off on the right foot.

C.A.R.E. INVESTIGATORS

Dale Christensen, Ph.D.
Principal Investigator
(206) 543-1412

Nancy Neil, Ph.D.
Project Director
(206) 616-1044

Andy Stergachis, Ph.D.
Bill Fassett, Ph.D.
Amber Andrews, MPH, R.Ph.
Garth Holmes, R.Ph.
Rod Shafer, R.Ph.
Dave Smith, R.Ph.

once. Perhaps you have even visited pharmacies you were not familiar with previously, gaining new friends and **colleagues** in the process. (If you haven't yet contacted any of your pharmacies, this would be a good time to change that.)

Maintaining contact with your constituent pharmacies helps to **reaffirm** your presence and availability as a resource person. Touching base as little as once a month can go a long way toward keeping pharmacists motivation and participation levels high

Are your pharmacies documenting the cognitive services they perform? Do **they** need help **identifying** opportunities to perform cognitive services? Are they sending their data into the University in a timely manner each month? Are they experiencing problems? Do they have any particularly interesting or challenging cognitive service experiences to share? And if you have any Group A pharmacies, are **they** billing for the cognitive services they perform? (See *refuted article on this page*)

The bulk of the "problems" that Area Coordinators report having had to deal with have been fairly easily solved Usually it's just a **clarification** of procedures, a request for supplies, or even just a desire to confer with a trusted Colleague.

Area Coordinators who have encountered problems that are not so easily solved have simply picked up the phone and asked C.A.R.E. personnel at the UW for help and/or advice.

Our toll-free 800 line is open 24 hours a day; it's now answered in person during regular working hours, and routed to voice messaging only on nights and weekends. We're always ready to hear from you.

Voucher Payment Changes

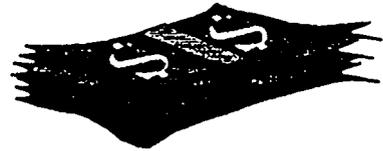
As all of you are doubtless aware, there has been a flurry of activity (and confusion!) over the past few months about payment of vouchers submitted to DSHS for pharmacists' participation in the C.A.R.E. project. To our knowledge those problems have been largely worked out, as have the bugs in the system that made for the problems to begin with.

As we attended to these problems we decided it would be necessary to change one of the voucher **procedures.** From here on out, pharmacists should send their signed vouchers in to the University of Washington at the same time that they send in their monthly cognitive service documentations.

Please **make** sure that all participating sites in your area are notified of this change! When C.A.R.E. project staff log in the data **from** each site, their voucher *will be* forwarded to DSHS for payment. Vouchers sent **directly** to DSHS for payment will, unfortunately, be returned to the pharmacist unpaid Only vouchers arriving at DSHS from the UW will be processed.

These new procedures will **remove** a layer of complexity from the system that cuts the voucher payment checks, and will allow us to keep better track of who has been paid and who has not.

If you have any questions about this, or other C.A.R.E. procedures, please **call** Dr. Nancy Neil, C.A.R.E. Project Director, at (206) 616-1044, or 1-800-801-9076.



Group A: Send A Bill!

In this project there are about 100 pharmacies (known as "Group A") that are able to bill DSHS for the cognitive services they have documented Of these 100 pharmacies, only about **half** of them are actually billing!

This project offers pharmacists an opportunity to be paid for their cognitive services, yet only some 50% of those eligible to bill and receive reimbursement are processing any bills.

And we'd like your help to find out why! If pharmacists aren't sure how to bill we can correct that. If there is some other problem, please tell us so that we can make sure that these pharmacists are paid the compensation they are due.

No Data??

Of the nearly 200 pharmacies enrolled in

Appendix L: Suspended Records Codes and Logic

CARE Project
Codes and Logic for Cognitive Service Record **Validation/Suspension**
As of 07/11/94

Pharmacists were instructed that they need only **code** the Original RX information if the Dispensed RX information is the same. Thus, it is sometimes necessary to impute the Dispensed **RX** information **from the** Original RX information. Conversely, it is possible that pharmacists **may** code the Dispensed RX information if **the** Original **RX** information is the same. Therefore the following logic **is used**:

If the result (RR) indicates a change in dose (RR =1 1) or a **change in dosage** regimen/duration (RR=12) or counsel patient (RR=30) or dispense as written (RR=90), then the Original RX information is imputed **from** the Dispensed RX **information (unless** both Original and Dispensed information already exist) or the Dispensed RX information is imputed **from** the Original RX information (again, **unless** both Original and Dispensed information already exist).

This imputation is carried out before any validation steps since several of the subsequent steps rely on the **completeness of** the Original and Dispensed RX Information.

The following codes used by the CARE Data Intake System to identify and track errors or changes in data records.

Code	Description	Suspend?
A1	Problem type (PP) missing or not on our list and therefore not valid	Yes
A2	Intervention type (II) missing or not on our list and therefore not valid	Yes
A3	Result type (RR) missing or not on our list and therefore not valid	Yes
B	The Cognitive Service Code (CSC) is not on the list of payable codes	No
C1	Pharmacy ID missing	Yes
C2	Date of Service missing or not complete	Yes
C3	Morbidity Risk missing	No
C4	Third Party Type Missing or not on our list of codes	Yes
C5	Time missing or zero	No
C6	Pharmacists initials missing	Yes
D	If Result type (RR) indicates drug was dispensed, (all RR except: Add OTC (RR=05); counsel patient (RR=30); and Referral (RR=40) then the CS must have both an NDC and a Quantity Or, If Result type indicates Counsel Patient (RR=30), and the Problem type (PP) indicates a drug was dispensed (all PP except: Patient Communication Difficulty (PP=30); Patient Case Managed (PP=34); Patient seeking care w/ symptoms (PP=41); Patient seeking care w/out symptoms (PP=42); Other non-drug problems (PP=90) then the CS must have both an NDC and a Quantity.	Yes
E	If RR indicates a Change in Dose (RR=11) or a change in Dosage Regimen (RR=12), then the CS must have an Original Days Supply.	Yes
F	If RR indicates a drug was changed, or a prescription drug was added (Change to drug of choice (RR=01), Add RX drug therapy (RR=02), Substitution generic (RR=03), Substitution therapeutic (RR=04), then the CS must have an Original and an Original Dispensed Quantity	Yes
G	If Pharmacy is in Group A and the CSC is payable, then there should be an RX number. Note - this does not imply that we are requiring the CSC to be payable. Rather, we need the "fake" RX number the pharmacy assigned the CS claim when submitting to DSHS. This information is necessary for linking of UW and DSHS CS claims.	Yes

H	If pharmacy is in group B, then the CS should have an RX number unless the RR implies a drug was not dispensed: Add OTC (RR=05); Discontinue drug (RR=21), Do not dispense (RR=22); Counsel patient (RR=30); or Referral (RR=40).	Yes
I1	Original NDC imputed from Dispensed NDC	No
I	Dispensed NDC imputed from Original NDC	No
I3	Original quantity imputed from Dispensed quantity	No
I4	Dispensed quantity imputed from Original quantity	No
J	Pharmacist ID not in our list of Pharmacist ID's	No
K1	Original NDC not in Medi-Span Database	No
K2	Dispensed NDC not in Medi-Span Database	No
L1	Pharmacy NABP number not on our list (applies to manual forms)	Yes
L2	DSHS ID replace NABP number (applies to manual forms)	No

Appendix M: Sample Data Correction Form

The Pharmacist  **C.A.R.E.** Project
 Cognitive Activities & Reimbursement Effectiveness

DATA CORRECTION REQUEST

PLEASE REPLY BY: 05/30/95

Pharmacy

Phone: (206) 622-3565 NABP: 490173
 Fax: (206) 382-9727 DSHS: 6041305

Phone/Fax **Correction** Requested

Instructions: *The cognitive service record below contains possibly incorrect and/or incomplete information. We ask your help in clarifying this record to insure the integrity of the C.A.R.E. database. If for some reason you are unable to correct this record, please indicate this in the space provided below. Then sign the form, and return it in the envelope provided, or FAX to C.A.R.E. at (206) 543-3835. Questions? Call us, toll free, at 1-800-801-9076.*

DATA REC'D CORRECTIONS

Prescription Number:	365881	365881	
Date of Service:	11/ /94	<input type="text"/>	c--Please enter the date this service was provided.
Prescribed NIX No.:	50924086001	50924086001	c--Please enter or re-enter the NDC of the drug prescribed.
Prescribed Quantity:	0	0	
Day's Supply:	365	365	
Dispensed NDC No.:			
Dispensed Quantity:	0	0	
Problem Code:	34	34	
Intervention Code:	31	31	
Result Code:	40	40	
RPh Initials:	KB	KB	

If you are unable to correct this record, please indicate reason (use back of page if necessary): _____ 003406

Pharmacist signature: _____ Date: _____

Appendix N: Pharmacy/Pharmacist Survey Instruments

OMB #0938-0671
Expires April 30, 1998

ID 1-7/
Batch 8-10/

WASHINGTON PHARMACY SURVEY

PHARMACIST QUESTIONNAIRE

Public reporting burden for this collection of information is estimated to average 15 minutes per response. This includes time for reviewing the instructions and completing the information. Send comments regarding this burden to the **Office** of Research and Demonstrations, 7500 Security Blvd., Baltimore, MD 21244 and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

*Question 16 was asked **only** of Groups A and B.

A. **PHARMACIST CHARACTERISTICS**

1. Have you completed and returned this survey before (as an employee of another pharmacy)?

- 1 Yes, I have completed and *returned* this survey. [STOP] 11/
2 No, I have not completed this survey before.

If Yes, please do not complete the rest of this survey, but do return it in the self-addressed envelope which accompanied this survey. Thank you.

2. What is your gender?

- 1 Male 121
 2 Female

3. What is your year of birth? 19_____ 13-14/

4. What is your level of education? (*Check all that apply*)

- 1 B.S. Pharm. or B. Pharm. 15/
2 M.B.A./M.S./M.P.H./M.H.A./other Masters 16/
3 Pharm.D. 171
4 Ph.D. 18/
5 Other (*Specify*) _____ 19-20/

5. Year in which you first practiced as a pharmacist (not counting any internship or residency periods) 19_____ 21-221

6. What **best** describes your current position? (*Check one*)

- 1 Staff pharmacist 231
2 Non-owner manager
3 Owner/Partner
4 Other (*Specify*) _____ 24-251

7. **How** many hours per week do you usually work in this pharmacy?

_____ Hours/week 26-27/

8. **How** many prescriptions do you personally prepare and dispense at this pharmacy during an average 8 hour shift?

_____ F&s/shift 28-30/

9. How many hours per week do you personally spend preparing and dispensing prescriptions in this pharmacy?

_____ Hours/week 31-32/

10. Are you able to provide as much patient counseling' about prescriptions as you believe is needed?

1 Yes(Skip to Q. 11)

33/

2 No

10a. Why not?

_____ 34-35/

_____ 36-37/

_____ 38-39/

11. About how many statewide or national professional association meetings have you attended in the past 12 months?

_____ Meetings

40/

¹OBRA 1990 describes in-person pharmacist counseling of Medicaid recipients or their caregivers regarding issues including: name and description of the medication, dosage information, special precautions, common adverse side effects and interactions, proper techniques for self-medication.

B. PHARMACIST DUR/INTERVENTION ACTIVITIES

12. Listed below are common prescribing problems which often require pharmacist interventions. During the past week, have you intervened to correct any of these problems? (*Check yes or no for each problem*). If yes: How many times did you intervene in the, past week?

Prescription Drug Problems	Occurred in Past Week		Approximate Number of Times	
	Yes	No		
a. Not optimal drug	<input type="checkbox"/> 1	<input type="checkbox"/> 2	41/	42-43/
b. Not optimal duration	<input type="checkbox"/> 1	<input type="checkbox"/> 2	44/	45-46/
c. Not optimal dosage form	<input type="checkbox"/> 1	<input type="checkbox"/> 2	47/	48-49/
d. Excessive dosage	<input type="checkbox"/> 1	<input type="checkbox"/> 2	50/	51-52/
e. Inadequate dosage	<input type="checkbox"/> 1	<input type="checkbox"/> 2	53/	54-55/
f. Drug-drug interaction	<input type="checkbox"/> 1	<input type="checkbox"/> 2	56/	57-58/
g. Drug-disease (or allergy) interaction	<input type="checkbox"/> 1	<input type="checkbox"/> 2	59/	60-61/
h. Drug-diet/food interaction	<input type="checkbox"/> 1	<input type="checkbox"/> 2	62/	63-64/
i. Drug-age/gender interaction	<input type="checkbox"/> 1	<input type="checkbox"/> 2	65/	66-67/
j. Drug-pregnancy interaction	<input type="checkbox"/> 1	<input type="checkbox"/> 2	68/	69-70/
k. Therapeutic/ingredient duplication	<input type="checkbox"/> 1	<input type="checkbox"/> 2	71/	72-73/
l. Non-formulary/prior authorization	<input type="checkbox"/> 1	<input type="checkbox"/> 2	74/	75-76/
m. Patient improper use of drug	<input type="checkbox"/> 1	<input type="checkbox"/> 2	77/	78-79/
n. Other (<i>Specify</i>) _____ 80-81/	<input type="checkbox"/> 1	<input type="checkbox"/> 2	82/	83-84/
o. Other (<i>Specify</i>) _____ 85-86/	<input type="checkbox"/> 1	<input type="checkbox"/> 2	87/	88-89/
p. Other (<i>Specify</i>) _____ 90-91/	<input type="checkbox"/> 1	<input type="checkbox"/> 2	92/	93-94/
q. Other (<i>Specify</i>) _____ 95-96/	<input type="checkbox"/> 1	<input type="checkbox"/> 2	97/	98-99/

12a. Approximately what percentage of the problems you identify and resolve involve a computer-generated alert?

_____ % involved a computer-generated alert 100-102/

C. ATTITUDES TOWARDS THE OBRA 1990 PROSPECTIVE DUR REQUIREMENTS

The following questions relate to the implementation of OBRA '90, and specifically the prospective DUR (PDUR) requirements.

13. We are interested in your attitudes about the OBRA 1990 requirement to proactively screen all prescriptions. Indicate the extent to which you agree or disagree with each of the statements below. (Check *one*)

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	
a. PDUR assists me in my communications with patients	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	103/
b. PDUR assists me in my communications with prescribers	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	104/
c. Reviewing PDUR alerts is a valuable use of my time	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	105/
d. PDUR helps avoid serious adverse patient effects	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	106/
e. PDUR does not interfere with the patient/pharmacist relationship	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	107/
f. PDUR does not interfere with the pharmacist/prescriber relationship	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	108/
g. PDUR does not interfere with the patient/physician relationship	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	109/
h. PDUR screens usually confirm my professional judgment	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	110/
i. Due to PDUR, I now spend more time counseling patients	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	111/

14. We are interested in your attitudes about how the provision of cognitive services (CS)¹ affects your dispensing activities. Indicate the extent to which you agree or disagree with each of the statements below. (**Check one**)

Provision of cognitive services:	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	
a. Assists me in my communications with patients	<input type="checkbox"/> 5	<input type="checkbox"/> 4	0 3	0 2	<input type="checkbox"/> 1	1121
b. Assists me in my communications with prescribers	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	113/
c. Helps avoid serious adverse patient effects	<input type="checkbox"/> 5	<input type="checkbox"/> 4	0 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	114/
d. Does not interfere with the patient/pharmacist relationship	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	1151
e. Does not interfere with the pharmacist/ prescriber relationship	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	116/
f. Has increased the amount of time counseling patients	<input type="checkbox"/> 5	0 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	117/
g. Is supported by my manager or supervisor	<input type="checkbox"/> 5	0 4	0 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	1181

¹OBRA 1990 includes examples of pharmacists' cognitive services (CS) : instances when a pharmacist consults a prescriber (or other pharmacist) ; patient or caregiver counseling; monitoring or educating patients; consulting external sources of prescription drug information.

15. The next series of questions relate to your work. Please evaluate to what extent each statement is characteristic of your current pharmacy practice. (Check one)

	Strongly Agree	Agree	NO Opinion	Disagree	Strongly Disagree	
a. If I do NOT monitor patient drug therapy, an unfavorable therapeutic outcome is probable.,	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	1191
b. Patients probably would NOT be harmed if I failed to instruct them concerning the proper use of their medications.	<input type="checkbox"/> 5	0 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	120/
c. Optimum drug therapy for the patient is impossible to achieve without my services_	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	0 1	1211
d. The health care of the patient would suffer without my services.	<input type="checkbox"/> 5	0 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	1 2 2 1
e. Patient care would suffer very little if I failed to provide drug information to the physician.	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	123/
f. Patient care would be unsatisfactory without my services.	<input type="checkbox"/> 5	0 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	124/
g. Patients are only concerned about getting their medication as quickly as possible so that they can leave as quickly as possible.	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	1251
h. Patients and customers treat me courteously.	<input type="checkbox"/> 5	0 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	1261
i. Patients are only concerned about getting their medications as cheaply as possible.	<input type="checkbox"/> 5	0 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	0 1	127/
j. Patients show appreciation for the services I provide them.	<input type="checkbox"/> 5	0 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	128/
k. Compared to the respect shown to other health care professionals, patients and customers show pharmacists an appropriate amount of respect.	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	0 1	129/

Question for Washington pharmacists (Groups A and B) only.

16. How burdensome are cognitive services documentation activities?

- 1 Very burdensome to complete (*Please explain in Q. 16a. below*)
- 2 Somewhat burdensome to complete (*Please explain in Q.16a. below*)
- 3 Not at all burdensome (*Skip to End*)

1301

16a. If you feel that the cognitive services documentation is very or **somewhat** burdensome to complete, please explain:

131-132/

133-134/

135-136/

1

Thank You For Your Cooperation

OMB #0938-0671
Expires April 30, 1998

ID 1-4/
Batch s-71

WASHINGTON PHARMACY SURVEY
PHARMACIST-IN-CHARGE QUESTIONNAIRE

Public reporting burden for this collection of information is estimated to average 5 minutes per response. This includes time for reviewing the instructions and completing the information. Send comments regarding this burden to the **Office** of Research and Demonstrations, 7500 Security Blvd., Baltimore, MD 21244 and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

*Questions 21 and 22 were asked only of Group A and B. Questions 23-25 were asked only of Group A.

1. Which of the following best describes your pharmacy? (Check one) 8/

- 1 Independent (3 or fewer pharmacies under same ownership)
- 2 Small Chain (4 to 9 pharmacies under same ownership)
- 3 Large Chain (10 or more pharmacies under same ownership)
- 4 Hospital pharmacy.
- 5 Health Maintenance Organization (HMO) pharmacy
- 0 6 Other (Specify) _____ 9-10/

2. What **best** describes the geographic area where your pharmacy is located? (Check one)

- 1 Urban 3 Suburban 11/
- 0 2 Small Town/Rural. 4 Other (*Specify*) _____ 12-13/

3. What **best** describes the setting where your pharmacy is located? (Check one)

- 1 Shopping Center/Mall/Large Dept.Store . 14/
- 2 Medical Center
- 3 Food Market/Grocery Store
- 0 4 Neighborhood/Freestanding Store
- 5 Other (*Specify*) _____ 15-16/

4. Is there a separate, private physical space or area available for pharmacists to counsel patients? (Please include counter space, if enclosed and private.)

- 1 Yes 17/
- 2 **No (Skip to Q.5)**

4a. What is the approximate square footage of this space or area?

_____ sq. ft. 18-20/

5. What is the total number of Full Time Equivalent (FTE) pharmacists employed by the pharmacy at this time (not including temporary or relief pharmacists)?

_____ FTEs 21-22/

6. What is the total number of Full Time Equivalent (FTE) **pharmacy** technicians employed by the pharmacy at this time? (Please include technicians authorized to assist in dispensing prescriptions - Level A.)

_____ FTEs 23-24/

12a. Approximately what percent of all Medicaid prescriptions are for nursing home prescriptions?

- 1 0% 33/
- 2 1-4%
- 3 5-9%
- 4 10-24%
- 5 >24%

13. Indicate those applications for which a computer is currently being used in this pharmacy. (**Check all that apply**)

- a. 1 Patient profiles 34/
- b. 2 Drug use review (DUR) for Medicaid 35/
- c. 3 Drug use review (DUR) for other Third Party Payor(s) 36/
- d. 4 Patient education monographs/leaflets 37/
- e. 5 Other (**Specify**) _____ 38/

39/

- f. 06 Computer is not in use 40/

If a, b, or c is checked, answer Questions 14 and 15; otherwise skip to Question 16.

14. Does the computer software in use at this pharmacy automatically screen for the following drug therapy problems? **(Check yes or no for each item below)**

Prescription Drug Problems	Computer Screen Available			
	Yes	No	Don't Know	
a. Not optimal drug	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	41/
b. Not optimal duration	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	42/
c. Not optimal dosage form	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	43/
d. Excessive dosage	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	44/
e. Inadequate dosage	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	45/
f. Drug-drug interaction	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	46/
g. Drug-disease (or allergy) interaction	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	47/
h. Drug-diet/food interaction	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	48/
i. Drug-age, gender interaction	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	49/
j. Drug-pregnancy interaction	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	50/
k. Therapeutic/ingredient duplication	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	51/
l. Non-formulary/prior authorization	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	52/
m. Patient improper use of drug	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	53/
n. Other (<i>Specify</i>) _____ 54-55/	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	56/
o. Other (<i>Specify</i>) _____ 57-58/	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	59/
p. Other (<i>Specify</i>) _____ 60-61/	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	62/
q. Other (<i>Specify</i>) _____ 63-64/	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 8	65/

15. When did the pharmacy first start using computer software for one or more of the prospective DUR screens listed in Question 15?*

19 _____

66-67

*OBRA 1990 defines prospective DUR as point-of-sale or point-of-distribution review of drug therapy before each prescription is filled or delivered to the recipient or the recipient's caregiver.

16. Has the pharmacy established its own DUR policies?

1 Yes

68/

2 No (Skip to Q. 17)

16a. Please describe or attach written policies:

_____ 69-70/

_____ 71-72/

17. Do you document cognitive services provided to non-Medicaid patients in your pharmacy at this time?

1 Yes-routinely

73/

2 Yes-sometimes

3 No

18. Do you routinely receive reimbursement for documented cognitive services provided to non-Medicaid patients from any third party at this time?

1 Yes

74/

2 No (Skip to Q. 19)

18a. About how many cognitive service events do you bill for each month?

_____ Cognitive service events

75-77/

Under 1990 Federal Medicaid legislation, the states must implement both prospective and retrospective drug use review programs, and must assure that pharmacists reimbursed by Medicaid provide counseling to Medicaid recipients and caregivers about prescriptions.

19. In the past year, did the costs of your prescription business increase from the year before, due to:

a. operating a prospective drug use review system?

1 Yes

78/

2 No

b. providing counseling to Medicaid recipients or their caregivers?

1 Yes

79/

2 No

20. About what percent of the total costs of your prescription business last year went to:

a. operating a prospective drug use review system?

- 1 none 80/
- 2 1-5%
- 3 6-10%
- 4 11-15%
- 5 16-25%
- 6 over 25%

b. providing counseling to Medicaid recipients or their caregivers?

- 1 none 81/
- 2 1-5%
- 3 6-10%
- 4 11-15%
- 5 16-25%
- 6 over 25%

Questions 21 and 22 should be asked of Washington pharmacy owners/managers in Groups **A and B:**

21. How useful have the communications (e.g., newsletters; toll-free number; notices; training materials) you have received from the Washington Pharmacist CARE Project been to you in: **(Check one)**

	Very Useful	Somewhat Useful	Not at all Useful	Have not received any communication	
a. helping you understand how to document cognitive services?	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	82/
b. addressing your problems or concerns?	0 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	0 1	83/

21c. Would more communication be useful?

- 1 Yes 84/
- 2 No **(Skip to Q.22)**

21d. Please describe the type of communication that would be useful.

85-86/

87-88/

22. In your opinion, how adequate is the documentation/participation payment of \$40/month, given the amount of work involved?

- 1 Very adequate. 89/
- 2 Adequate
- 3 Somewhat adequate
- 4 Not at all adequate

For Washington Group C Pharmacies only:

23. Please check those reasons why your pharmacy did not choose to participate in the Washington Pharmacist CARE Project. (Check **all that apply**)

- 1 Pharmacy was not aware of the opportunity to participate 90/
- 2 Pharmacy is too busy to participate 911
- 3 Corporate management precluded participation 92/
- 4 Documentation burden is too high 931
- 5 Documentation payment not adequate 94/
- 6 Cognitive services payment not adequate 95/
- 7 Other (*Specify*) _____ 96-97/

Questions 24-26 should be asked of Washington pharmacy owners/managers in GROUP A, who receive payment from DSHS for cognitive services:

24. In your opinion, how adequate are the cognitive services payment levels for Medicaid recipients: (CHECK ONE)

	Very Adequate	Adequate	Somewhat Adequate	Not At All Adequate	
a) Brief encounter @ \$4.00 (6 minutes or less)	<input type="checkbox"/> 4	03	<input type="checkbox"/> 2	01	981
b) Extended encounter @ \$6.00 (more than 6 minutes)	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	991

25. The demonstration project payment rules restrict payment for cognitive services in some cases. What other cognitive services, if any, do you think should be eligible for cognitive services payment? Please describe.

_____ 100-1011

_____ 102-103/

_____ 104-105/

26. Are the cognitive services payment rules clearly defined?

1 **Yes (*Skip to End*)**

1061

2 No

26a. Please describe which rules are not clear or well-defined.

107-108/

109-110/

111-112/

Thank You For Your Cooperation

Appendix 0: A Selective Review of Studies Describing and Evaluating
Performance of Cognitive Services by Pharmacists

Appendix 0

A Selective Review of Studies Describing and Evaluating Performance of Cognitive Services by Pharmacists

Reference	Design	Sample/Setting/intervention	Main Findings
Bjornson et al 1993	study/control	Army medical center health teams with and without pharmacists.	<p>Patients seen by health team with a pharmacist had:</p> <ul style="list-style-type: none"> · shorter lengths of stay. · lower drug costs per admission. · no difference in mortality. · mean cost savings was \$377 per inpatient admission (benefit to cost ratio = 6: 1).
Borgsorf et al 1994	before/after	Patients referred to a pharmacist drug referral center in a staff model HMO (N=836).	<ul style="list-style-type: none"> • 35% of patients had identified compliance problems. The number of unscheduled visits significantly reduced. • Cost savings averaged \$644 per patient.
Christensen et al 1981	time series/descriptive study	All clinic pharmacies in a closed panel HMO. Observation period was 16 months. Time-motion study of pharmacists.	<ul style="list-style-type: none"> • Overall problem intervention rate of 1.1-4.9% of all prescriptions dispensed across months. (Mean: 4.0% during last 4 months). • Drug therapy change rate of 9% overall, 44% of prescribing-related problems. • Mean time per problem intervention was 6.0-7.8 minutes
Dobie and Rascati 1994	descriptive study	Four community pharmacies. A physician-pharmacist panel was used to independently assess the cost of avoided medical care due to cognitive services.	<ul style="list-style-type: none"> · Documented cognitive service interventions had an estimated mean value added of \$3.50 per Rx due to avoided medical care costs.
Dumas and Matte 1992	retrospective survey	Sample of 600 pharmacies. Opinions (drug problem, interventions) written by community pharmacists in Quebec.	<ul style="list-style-type: none"> • Most opinions addressed drug taking compliance (45%) or suggestions to change therapy (33%).
Fincham et al 1995	descriptive study	Convenience sample of 19 community pharmacies in NE and IA. Observation period was 4 weeks.	<ul style="list-style-type: none"> · A total of 712 interventions were reported. • 64.7% were for drug therapy monitoring. · 17.0% were errors of omission. · 15.3% were prescribing errors. · 15.4% were drug-drug interactions.
Forstrom et al 1990	before/after, study/control	HMO family practice clinic pharmacy. Physicians randomized to received written chart recommendations for change in hypertension therapy.	<ul style="list-style-type: none"> • The cost of drug therapy in patients of study group physicians was significantly higher in before period than controls, but declined during the after period. The mean cost of antihypertensive drug treatment decreased from \$33 to \$27 per day.

Appendix C, continued

Haig and Kiser 1991	study/control	Tertiary care teaching hospital. Health teams with and without pharmacists.	<ul style="list-style-type: none"> Health teams with pharmacists had lower per-patient pharmacy costs, hospital charges, and lengths of stay.
Ibrahim 1990	before/after	57 patients with high cholesterol at initial screening. Pharmacist intervention: screen, advise about disease risk factors, follow-up cholesterol levels and advice.	<ul style="list-style-type: none"> After 2 visits, a significant decrease in cholesterol levels was observed.
Jameson et al 1996	randomized controlled trial	56 high risk patients. The intervention was a single patient consult by a clinical pharmacist.	<ul style="list-style-type: none"> After 6 months, patients receiving consults (compared to controls) were using fewer prescribed drugs, fewer doses per day, and had lower annualized drug costs (\$586).
Knowlton and Knapp 1994	study/control	27 independent pharmacies who were HMO preferred providers.	<p>Patients visiting intervention pharmacies:</p> <ul style="list-style-type: none"> had 6.5% lower Rx ingredient costs, 6.0% higher generic substitution rates, 8.3% lower average drug costs per month spent 2.4 times more time with patients initiated 2.5 times more requests for prescribers to change therapy, intervened 3.7 times more often to reduce drug costs, and suggested medication changes 1.9 times more often.
Lipton et al 1992	prospective randomized controlled trial	Patients (65+ years) discharged from hospital with 3 or more medications. Pharmacist intervention: clinical pharmacist consults with prescriber at time of discharge and periodically for 3 months.	<ul style="list-style-type: none"> 83% of patients had 1 or more clinically significant drug problems and 22% had at least one potentially serious problem. Study group patients had drug regimens judged to be more appropriate than control.
Rupp et al 1992	descriptive study	Convenience sample of 89 community pharmacies in 5 states. Observation period was 2 weeks.	<ul style="list-style-type: none"> Problem intervention rate of 1.9% of new prescriptions (1.3% of total prescriptions) across all states. Range: 1.2-2.3% of total prescriptions. Errors of omission comprised 45.6% of reported problems. Drug therapy was changed in 4 1.4% of the interventions. Low volume pharmacies performed more cognitive services.

Appendix 0, continued

Rehder et al 1980	4 group randomized design	Patients: 100 hypertension clinic patients receiving 2 or more prescriptions per day. Pharmacist intervention: drug therapy counseling and special container dispensing .	<ul style="list-style-type: none"> • Significant improvement in appointment-keeping and compliance among patients counseled. Each intervention had a significant, additive effect on drug taking compliance.
Rupp 1992	descriptive study	Expert panel used to assess the cost of medical care avoided due to cognitive services .	<ul style="list-style-type: none"> • 28% of problems could have caused patient harm in the absence of the intervention. • The direct cost of avoided medical care was \$123 per problematic prescription, or \$2.32 per new prescription orders screened.
Smith and Christensen 1996	longitudinal descriptive study	18 IHS ambulatory clinic pharmacies.	<ul style="list-style-type: none"> • Overall problem detection rate of 0.89% of all prescriptions. • Drug therapy change rate of 78%. • Problem types included prescription clarification or incorrect information. • Problem detection rate declined over time due to policy and procedure changes within the clinic.
Wilt et al 1995	(5 yr. retro- spective) study/control	Patients taking warfarin attending/not attending a pharmacist- staffed anticoagulation clinic.	<ul style="list-style-type: none"> • Patients not attending the clinic were 20 times more likely to experience an adverse medical event. • A potential cost avoidance of \$4,078 per person-year of follow-up was reported.

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