**Report on the Wisconsin Medicaid Pharmaceutical Care Program:
Pharmacy Provider Participation and Pharmaceutical Care Claims**

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INTRODUCTION

Increasingly, pharmacists in practice are focusing on identifying drug related problems and intervening to improve drug therapy. These patient care efforts are being recognized via initiation of payment to pharmacies for activities pharmacists perform to improve patient drug therapy.[1] This is important because lack of payment for services is often cited as a barrier preventing pharmacists from performing these cognitive, patient care services.[2,3,4] Consequently there is a need to evaluate pharmacy participation in programs that provide funding for cognitive services such as the Wisconsin Medicaid Pharmaceutical Care Program (WMPCP). With evidence of other states proposing similar incentive-based programs for cognitive, patient care services, it is imperative that information gained be shared with the greater community of pharmacy nationwide.[5]

Description of the WMPCP Under 1995 Wisconsin Act 27, the state biennial budget, Wisconsin Medicaid was required to develop an incentive-based pharmacy payment system that pays for cognitive, patient care services provided by pharmacists.[6] The Wisconsin Medicaid Pharmaceutical Care Program (WMPCP) began July 1, 1996 and established payments to pharmacies for pharmaceutical care (PC) services provided to Wisconsin Medicaid fee-for-service recipients. To comply with existing federal requirements, the payments were implemented as enhanced dispensing fees. The enhanced fees reimburse pharmacies for additional actions they take beyond the standard dispensing and counseling for a prescription drug.

WMPCP uses a modified version of the National Council for Prescription Drug Programs (NCPDP) Professional Pharmacy Service codes originally developed by Work Group 10. Pharmacists use a series of two-digit codes to represent reasons, actions, results (outcomes), and levels of service when billing Medicaid. A total of 47 reason codes were created in three general categories: prescription-related, drug-related and patient-related problems. Most of the PC services reason codes describe drug-related problems identified during dispensing a prescription. Twelve action codes describe how the pharmacist intervened to correct the problem. Twenty-two result codes provide pharmacist assessment of the outcome that resulted from the action taken. Lastly, five level of service codes define the amount of time spent by the pharmacist in resolving the problem (0-5 minutes, 6-15 minutes, 16-30 minutes, 31-60 minutes and 61 or more minutes). Enhanced dispensing fees are associated with each of the five levels of service.

There are various limits for billing PC services. Only one PC service dispensing fee per recipient per provider per day is paid. Some PC services have maximum yearly billing frequencies and maximum dispensing fees payable regardless of level billed. Limits on billing frequencies range from one per year to 15 per year. The most common limit on dispensing fees is a cap on payment amount at the level 3 (16-30 minutes) dispensing fee. Pharmacists also are required to establish and maintain a PC patient profile with expanded information beyond the patient prescription profile and document specific information related to a PC service. Pharmacists may use any format to

document and profile PC activities, but there are required elements that must be present in the profiles and documentation.

Pharmacist Training Prior to the start of WMPCP, a full day of training was offered to state pharmacists via multiple sessions throughout the state. Staff from the Wisconsin Pharmacists Association (now Pharmacy Society of Wisconsin) teamed with State Medicaid program staff for the training sessions. Sessions provided information on legislative efforts taken to secure the project, the federal and state standards for payment, and hands-on instruction regarding claims. Additional training sessions were offered every two years after the start of the program and after major changes to the program. Special presentations for long term care pharmacists and for special services such as asthma management also were provided.

Individuals Served by WMPCP.   The WMPCP program is targeted at Medicaid recipients receiving care under the fee-for service system in Wisconsin. Pharmacists serving Medicaid recipients enrolled in managed care plans may not receive reimbursement for PC services unless the managed care plan agrees to the provisions of the WMPCP or the managed care program has its own such program. Wisconsin Medicaid has no requirement that managed care plans must reimburse pharmacies for PC services provided to Medicaid patients. PC claims for services provided to patients and reimbursed by a managed care program are not available via the Medicaid database and are therefore outside the scope of this study. State Medicaid managed care enrollment data suggest that a large percentage of the recipients in managed care programs are young, relatively healthy persons typically with low drug use. The frail elderly and chronically mentally ill are recipients who remain in the fee-for-service system and are high users of prescription drugs. These are the people who can benefit most from PC services provided through the WMPCP.

Changes to the Program Since its inception, there have been two significant administrative changes to the WMPCP. Initially, in 1996, pharmacists were required to submit paper claims for reimbursement. In September 1999 (fiscal year 2000), a point of service (POS) system was adopted for claims submission. The POS system allowed all pharmaceutical care claims to be billed electronically, on-line, in real-time using the NCPDP structure. Additionally, the program adopted codes for initiating therapeutic substitutions and prior authorization substitutions for H2-receptor antagonists.

In February 2001 (fiscal year 2001), Wisconsin Medicaid began using prospective drug utilization review (PDUR) to provide feedback to pharmacists about problems with Medicaid patients' drug therapies. The goal of PDUR is to screen certain drug categories for clinically significant potential drug therapy problems before the prescription is dispensed to the recipient. Because the system only screens certain drug categories, this system is not a replacement for pharmacist PC services. In the event of a PDUR alert, the pharmacist must respond to or override the alert to process the prescription claim for reimbursement. If the pharmacist responds to the alert, they can submit a PC claim electronically and be reimbursed for their time in solving the alert. If a pharmacist determines that a PC service is applicable, but is different from the problem identified via

the PDUR alert, the pharmacist can provide the service and must submit a PC claim using a paper claim form.

AIMS

This report contains a summary of analyses examining pharmacy participation in the program and characteristics of the PC claims paid between 1996 and 2003 as well as for each year of the program. The first group of analyses examines pharmacy participation in the WMPCP and intensity of participation among participating pharmacies. The second group of analyses examines frequencies of reason, action, result and level of service (time) codes overall and across each year of WMPCP. Third, we examine frequencies of therapeutic categories of drugs associated with PC claims overall and for each year of the program. Fourth, we examine frequencies of reason, action, result and time codes overall and each year for the ten pharmacies paid for the most PC claims since the inception of the program.

METHODS

Data

The primary data file for the analyses was a database of PC claims paid by Medicaid to pharmacy providers. The file was obtained from the state Medicaid program and contained information for every PC claim paid under the WMPCP since 1996. Data elements for each claim included the pharmacy name and provider ID number, date of service, reason code, action code, result code, time code, amount paid, and the total number of drugs associated with the claim. Where applicable, an NDC number, a HIC4 code, a GCN code and the name of up to three prescription drugs associated with the PC claim also were included. Based on the date of service, state fiscal year was assigned to each claim. (Fiscal years begin July 1 and end June 30.)

Additional data about Medicaid pharmacy providers were obtained from the state to help identify and categorize pharmacy providers. These data included provider identification information (provider name and address) and summary statistics of Medicaid program participation (number of recipients and prescription claims paid) for each provider for each study year.

Data Analysis

Aggregate PC Claims and Pharmacy Participation

The first group of analyses examined the total number of claims paid under WMPCP and pharmacy participation in the program. To examine characteristics of participating providers, we created a summary file by aggregating the data by pharmacy, using the provider ID number as the key variable. Some pharmacies had multiple provider ID numbers due to changes in ownership and for other reasons. The additional provider address information was used to create a "site" variable based on location to remove duplication and designate provider pharmacies that participated in the program. Counts of participating pharmacies and summary statistics across participating providers

were based on the pharmacy site identification number. For each participating provider pharmacy, the total number of drug claims paid by Medicaid and the number of Medicaid recipients using the pharmacy were added from the Medicaid summary statistics data. We created variables measuring the annual PC claim rates relative to the number of Medicaid drug claims and Medicaid recipients served in the pharmacy.

To examine participation rates among all pharmacy providers, we used a database containing information for all Medicaid pharmacy providers for each year. Participating pharmacy providers were identified by the presence of their ID number in the summary file of participating providers. We examined participation rates by type of provider pharmacy, urban/rural location, Medicaid recipient volume, and Medicaid drug claim volume. Type of pharmacy was defined as independent, chain, health system/clinic, and long-term care. We assigned a type variable for participating pharmacies and non-participating pharmacies in the provider file by name recognition and researchers' knowledge of pharmacies and their operations. A rural/urban location classification also was noted for all pharmacies. Pharmacies in cities or within contiguous areas with populations of 50,000 or more residents were categorized as urban pharmacies; all others were considered rural pharmacies. A classification based on Medicaid recipient volume also was created and had three levels: high, medium and low. The high classification represented pharmacies with more than 1,000 Medicaid recipients, medium represented pharmacies with 501 to 1,000 recipients and low represented pharmacies with 500 or fewer Medicaid recipients.

Characteristics of PC Claims
The second group of analyses examined the characteristics of the paid PC claims. Analyses examined the frequency of each reason, action, result and time code in the PC claims database. Reason, action, and result codes were grouped based on general types of reasons, actions and results to create code categories. Frequencies of the reason, action, and result categories were examined. These analyses were conducted for each year and the program overall.

Drugs Associated with PC Claims
The third part of data analysis was a description of the drugs associated with PC claims. We examined the number of drugs associated with each PC claim and the therapeutic category of the first drug listed with each PC claim. Also, we examined which categories of drugs were associated with each reason of action code category for each year and overall.

We used the American Hospital Formulary Service (AHFS) Pharmacologic-Therapeutic Classification coding system to assign therapeutic category codes to drugs. The drug names in the PC claim database were combined with the researchers' knowledge of drugs to assign an AHFS code to each drug. We used both 4-digit and 6-digit AHFS codes to categorize drugs. The 6-digit codes provided more detail for therapeutic categories. For some therapeutic categories we modified the 6-digit AHFS coding to categorize certain drugs into more detailed categories representing mechanisms of action. For example, we identified COX2 inhibitors by modifying the AHFS code for

non-steroidal anti-inflammatory drugs (NSAIDS) to create a category for NSAIDS and COX2 inhibitors

Ten Pharmacies Paid for the Most Claims

For a more detailed assessment of participation and characteristics of PC claims, we focused on the ten pharmacies with the most claims paid during the program's operation. We examined characteristics of the pharmacy providers and analyzed the numbers of claims per year and characteristics of those claims to compare and contrast the participation of these top participating providers.

RESULTS

Aggregate PC Claims and Pharmacy Participation

Table 1 contains the number of paid PC claims, the number of Medicaid pharmacy providers that were paid for at least one PC claim, and the total number of Medicaid pharmacy providers for fiscal years 1997 through 2003. The participation rate in the WMPCP ranged from 5.8% of all Medicaid pharmacy providers in 2000 to 13.8% of Medicaid pharmacy providers in 2001. Overall, about one-fifth (19.4%) of Medicaid pharmacy providers have been paid for at least one PC claim.

The first two years of the program were very similar, in terms of total claims paid, but in the third year, there was about a 45% decrease in the number of claims paid. The third year, 1999, represented the fewest number of claims paid; thereafter, there was a consistent increase in the number of claims paid each year. The large increase in claim volume in 2000 likely was due to the ability of pharmacy providers to submit claims on-line. The number of pharmacies participating in the program showed two decreasing trends, with the highest numbers of participating pharmacies in the first (1997) and fifth (2001) years. The large increase in the number of pharmacy providers paid for claims likely was due to the prospective drug utilization review program (PDUR) initiated in February, 2001. The trend of increasing claims since 1999 coupled with a decreasing trend in the number of participating pharmacies since 2001 resulted in an increasing intensity of claims per pharmacy in the latter years of the program.

Tables 2 and 3 characterize the pharmacies that participated in the PC program. Although the largest numbers of pharmacies participating each year were independent pharmacies, the proportion of participating pharmacies that were independent pharmacies has eroded over time. Chain and health system/clinic pharmacies increasingly are represented proportionally among PC program provider pharmacies. Since 2000 the average number of paid PC claims per participating pharmacy was largest among long-term care pharmacies and lowest among chain pharmacies.

The proportion of participating pharmacies located in rural areas decreased between 2001 and 2003, mainly due to a large decrease in the number of rural pharmacies participating in the program. Since 1999 the average number of paid PC claims per pharmacy was largest for participants in rural areas. Interestingly, low Medicaid recipient volume pharmacies are the most common among program participants, but the proportion of participants that are high Medicaid recipient volume pharmacies generally has increased. Large Medicaid volume participants consistently had larger average number of claims per participant.

Tables 4 through 6 summarize participation rates of pharmacies statewide when the pharmacies are grouped by type, location, and Medicaid recipient volume. Table 4 reveals that each year, a greater proportion of the independent pharmacies in the state have participated in the program. Lagging slightly behind in rates of participation are health system/clinic pharmacies. No clear trend of increasing adoption or growth in participation by any type of pharmacy seems to be occurring; no group of pharmacies by type is taking on the program more so than others. As noted in table 2, increasing proportions of pharmacies participating are chain and health system/clinic pharmacies. Contributors to this change include growth in the total number of chain pharmacies operating in the state and purchases of independent pharmacies by a health system that often maintains staffing and operations after purchase (thus converting ownership but not totally operations or operating philosophies).

Table 5 shows that participation rates for rural pharmacies were larger than participation rates for urban pharmacies in 1997 but that this relationship reversed in 2003. Table 6 reveals that pharmacies with higher Medicaid recipient volumes have higher participation rates. Overall, over one-third of providers with high Medicaid recipient volume participated in the program compared to 8% of pharmacy providers with low numbers of Medicaid recipients. After the increase in participation in the program in 2001, providers with high Medicaid recipient volumes were more likely to remain in the program relative to other providers.

Table 7 shows the patterns of participation in the WMPCP between 1997 and 2003. The general trends from Table 2 of decreasing numbers of participating pharmacies after the initial year and fifth year spike are evident. Dropping out of the program is common. For example, it is common for pharmacy providers to drop out of the program in the same year that they are paid for their first claim. Also, the proportion of pharmacies that were paid for their first claim in one year and never paid again in subsequent years increased steadily between 2000 (37.5%; 9 of 24) and 2002 (69%; 18 of 26). The annual general drop out rate from the program (proportion of pharmacies paid for at least one claim and then never again) decreased from 30% to 27% between 1997 and 2000 and increased to 47% in 2001 and 2002. It is also possible to gain a sense of program participation longevity. Only 15 of the pharmacy providers that participated in the program at the start participated every year.

Table 8 contains the distribution of paid PC claims by pharmacy providers between 1997 and 2003. The distribution of claim volume per pharmacy is skewed.

Overall, over 60% of participating pharmacies were paid for 10 or fewer PC claims. Conversely, almost 85% of paid PC claim volume was associated with a small number of pharmacies (n = 48) that were paid for 50 or more claims. One provider accounted for 16.1% of all paid PC claims. Also, as noted previously, the volume of paid claims appears to be related to the number of Medicaid recipients using each pharmacy provider. The claim intensity rate at pharmacy providers paid for more than 100 claims suggests that over one in 10 Medicaid patients were the target of a PC service. Appendix B contains tables showing the distribution of paid PC claims by participating pharmacy providers for each year of the program. The pattern of most claims being paid to a few pharmacies was consistent each year, similar to overall program results.

Table 9 profiles the participation of pharmacies in the top three deciles of the distribution of paid PC claims per pharmacy by year. The overall trend was an increasing concentration of paid PC claims among the top 10% of participating pharmacies from 55.1% to 80.5% of all claims in 1997 and 2003, respectively. The rate of PC claims per 100 Medicaid recipients for the top 10% of participating pharmacies increased from 7.5 in 1997 to 28.4 in 2003. Pharmacies with large Medicaid recipient volumes were common in the top decile of providers after 2000 suggesting these providers increased the volume of paid claims after 2000. Comparing across deciles suggests that pharmacies in the second and third deciles generally had smaller numbers of Medicaid recipients and smaller Medicaid drug claim volume. These results suggest that volume of paid claims is related to Medicaid patient volume.

Characteristics of PC Claims

Table 10 contains the frequency of individual reason codes overall and by fiscal year. The reason code "late refill" was the most common code across all years of the program. There were several instances of large increases in the frequency of reason codes between two consecutive years. For example, "in-home medication management" claims increased considerably in 2000 and 2003, and "product selection" increased in 2001 and 2003.

Individual reason codes were categorized to reflect the general types of reasons for PC services, Drug Use: Patient Behaviors, Drug Choice, and Drug Use Issues/ Problems. Table 11 contains the frequency of reason codes in the general categories overall and by year. Overall, Drug Use: Patient Behaviors was the most common reason category. Between 1997 and 2003 there was an upward trend in the proportion of claims with Drug Use: Patient Behaviors as the reason code category. However, after 2000 the proportion of claims with Drug Use: Patient Behaviors as the reason category decreased. Between 1997 and 2000 there was a decreasing trend in the proportion of claims with Drug Choice as a reason category, but in 2001 there was an increase in the proportion of claims paid that had the Drug Choice code category. The most common individual reason codes in the Drug Use: Patient Behaviors, Drug Choice, and Drug Use Issues/Problems categories were late refill, product selection opportunity, and patient complaint/symptom, respectively.

Table 12 contains the frequency of individual action codes overall and by fiscal year. The action code patient education was the most common code across all years of

the program. The largest year-to-year increases in frequency of codes occurred for patient education (2001), prescriber contacted (2001), therapeutic product substitution (2001 and 2003), patient assessment (2003), and coordination of care (2003).

Individual action codes also were categorized into groups based essentially on with whom the pharmacist interacted when taking action: patient, prescriber, other, or no one/alone. Table 13 contains the frequencies of action code categories overall and by year. Overall, there was a decreasing trend in the proportion of claims in the Prescriber Contacted category and an increasing trend in the Patient Contacted category. There was a downward trend in the proportion of claims in the Pharmacist Alone category after 2000. Between 2000 and 2001 there was an increase in the proportion of claims paid that had the Prescriber Contacted code category. The most common codes in the Patient Contacted, Prescriber Contacted, and Pharmacist Alone categories were patient education, prescriber contacted, and therapeutic product substitution, respectively.

Table 14 contains the frequencies of the individual result codes overall and by year. The top three result codes, instructions understood, filled with different drug, and compliance aid developed, represented nearly 75% of all claims. Notable increases in frequency of result codes occurred between some years such as instructions understood (1999 to 2000), filled, different drug (2000 to 2001 and 2002 to 2003), and compliance aid (1999 to 2000 and 2002 to 2003). These increases are consistent with increases in corresponding action codes. For example, the increase in instructions understood corresponds with an increase in actions directed at patients (patient education, patient assessment). Also, the increases in filled, different drug correspond to increases in the therapeutic product substitution action code.

Individual result codes were categorized to reflect the general outcome of the pharmacist action. Frequencies of claims with these general types of results are shown in Table 15. There was an increase in the proportion of claims with the Patient Informed and Compliance Aid Provided result code category between 1997 and 2003. Conversely, there was a decrease in the proportion of claims with Adjusted Fill as the result code category between 1997 and 2003. However, between 2000 and 2001, there was an increase in the proportion of paid claims that had the Adjusted Fill result code category.

Table 16 summarizes the length of service time codes for claims that were paid at different levels of service time categories. Overall more than half of PC services were paid for the lowest two levels of time categories to represent services consuming 15 minutes or less. The most common level of service time code was 6-15 minutes both overall and for each year except 2000 where 31-60 minutes was most common. The next most common time code in each year was either 16-30 minutes (1997, 1998, 1999, 2002) or 31-60 minutes (2000, 2001, 2003). There were no consistent patterns or trends in the frequency of length of service time codes during the program. In the early years of the program, there was a trend toward an increasing proportion of claims paid for times of 16 minutes or more, reaching a peak of 56.9% of all claims in 2000. After that, approximately 60% of claims were for shorter times (15 minutes or less).

Tables 17 through 19 show cross tabulations of reason, action, and result code categories represented in the claims data. Some relations became apparent from these cross tabulations, several as might be expected. In Table 17, there was a relationship between reason code categories and action code categories. For most claims with the Drug Use:Patient Behavior or the Drug Use:Issues/Problems reason code categories, pharmacists interacted with patients to resolve the problem. Conversely, for approximately equal proportions of claims with the Drug Choice reason code category, pharmacists interacted with the prescriber (51.7%) or the pharmacist acted alone (48.3%) to solve a problem.

In Table 18 there was a relationship between reason code categories and result code categories. Over 80% of claims with Drug Choice as the reason code category resulted in an adjustment in the fill of a prescription and approximately 85% of prescriptions with Drug Use:Issues/Problems as the reason code category resulted in patients being informed about the drug therapy. Among claims for Drug Use:Patient Behaviors problems, almost half resulted in pharmacists informing patients about drug therapy and about one-third resulted in pharmacists providing a compliance aid to a patient.

Table 19 displays the cross tabulation of action code and result code categories. As with the previous two tables there were relationships between some of the action code categories and result code categories. For most of the claims when action was to interact with the patient, the result was either to provide a compliance aid (27.1%) or the patient was informed (66.4%). When the action involved contacting the prescriber, the main results were either to adjust or not dispense the prescription (63.7% and 17.1%, respectively). In nearly three fourths of the claims where the pharmacist acted alone, the dispensed drug was adjusted, and nearly all the remaining claims resulted with the patient being informed.

Table 20 contains the length of service time codes cross-tabulated with the reason, action, and result codes. There was variation in the time codes across the reason code categories, suggesting different reasons required more intensive time spent to resolve the problems. Claims with Drug Use:Patient Behaviors as the reason code category had a bi-modal distribution of service level times; claims most often were paid with a time level of 31-60 minutes (44.7%) or a time level of 6-15 minutes (35.2%). Claims with Drug Choice as the reason code category commonly were paid at a time level of 15 minutes or less (6-15 minutes; 41.9%, 0-5 minutes; 33.5%). Claims with the Drug Use:Issues/Problems commonly were paid at a time level between 6 and 30 minutes (16-30 minutes; 45.3%, 6-15 minutes, 41.4%).

In terms of action code categories, when the pharmacist acted alone, claims commonly were paid at a time level of up to 15 minutes (0-5 minutes, 39.8%; 6-15 minutes, 26.9%). Slightly over one-quarter of claims with an action code category of Pharmacist Alone were paid at a time level of 31-60 minutes. When a pharmacist contacted a patient or contacted the prescriber, claims were paid at similar time levels. A higher percentage of claims were paid at the 31-60 minute time level when the

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pharmacist contacted the patient (25.6%) compared to when the pharmacist contacted the prescriber (17.8%).

In terms of result code categories, over 80% of paid claims showing that a patient received a compliance aid were paid at a time level of 31-60 minutes. Conversely, over 70% of claims resulting in an adjusted prescription fill were paid at a time level of 15 minutes or less (0-5 minutes, 30.0%; 6-15 minutes, 43.2%). Claims resulting in the patient being informed about drug therapy commonly were paid at three time levels: 6-15 minutes, 45.0%; 16-30 minutes, 22.7% and 31-60 minutes 20.3%.

Table 21 shows the frequency of action/result code combinations for all paid PC claims. Over 80% of all paid PC claims were attributed to only four action/result code combinations. Two of the four most common code combinations involved the pharmacist contacting the patient and these code combinations represented over 45% of all paid PC claims.

Table 22 contains the frequency of action/result combination code categories by reason code categories. It was almost equally likely that when a pharmacist intervened due to a Drug Use: Patient Behavior issue and contacted the patient, the patient was either informed or provided a compliance aid. As noted previously, when a drug choice problem was the reason for the PC service, an adjustment was made in the prescription. However, it was more likely that the pharmacist acted alone and adjusted the prescription compared to contacting a prescriber before making the adjustment.

Table 23 contains the frequency of action/result combination code categories by length of service time codes. It appears the nature of the problem pharmacists solved and billed for reflected the use of different resources which consumed different amounts of time. For example, when pharmacists acted alone they billed lower time codes when they adjusted a prescription fill (over 85% of claims billed between 0-5 minutes) compared to when they informed a patient about drug therapy (almost all claims billed at 31-60 minutes). Also, when pharmacists contacted patients, the development of a compliance aid consumed more time relative to informing a patient.

Table 23 also shows that how a problem was solved is important in determining time spent. For example, more time was consumed when a prescriber was contacted to adjust a prescription fill relative to when the pharmacist made the adjustment alone: over 75% of claims where the pharmacist contacted the prescriber to adjust a prescription fill were billed between 6 and 30 minutes compared to 50% of clams when the pharmacist alone made the adjustment. It appears the length of service time codes agree with how problems were solved by pharmacists.

Drugs Associated with PC Claims

Overall, over 90% of paid PC claims listed one drug that we assume was the target for the PC service (Table 24). Between 1997 and 2000 the proportion of PC claims that listed no drug with the PC claim decreased from 13% to less than 1%. Also, the

proportion of PC claims listing more than one drug decreased between 1997 and 2000. It is likely that the initiation of electronic submission for PC claims facilitated the inclusion of one targeted drug associated with the claim.

Tables 25 and 26 show the frequency of 6-digit therapeutic category codes overall and by year, respectively. H2 Receptor Antagonists, ACE Inhibitors and Antidepressants were the three most common therapeutic categories of drugs listed first in paid PC claims overall. Between 1997 and 2003 there were no patterns in frequency of the top ten therapeutic categories overall. There was a large increase in the proportion of all paid PC claims in 2003 that listed H2 Antagonists and a large increase in the proportion of all paid PC claims in 2001 that listed ACE Inhibitors.

Table 27 contains the frequencies of the ten most common 6-digit therapeutic categories overall classified by three reasons code categories: Drug Use:Patient Behaviors, Drug Choice, and Drug Use Issues/Problems, respectively. Of the top five therapeutic categories listed in each reason code category, only one therapeutic category (Opiate agonists) is listed in more than one reason code category. For some of the therapeutic categories, the frequency of the theraoeutic category is concentrated in one reason code category. For example, over 97% of all antiparkinsonian drug mentions are in the Drug Use:Patient Behavior category. Also, 79% of all H2 antagonist mentions are in the Drug Choice category.

<u>Ten Pharmacies with the Most Paid PC Claims</u>
Tables 28 through 30 summarize characteristics and participation of the ten pharmacies with the most paid PC claims. Table 24 reveals that the total number of PC claims paid to these top pharmacies represents nearly 60% of the total paid PC claim volume. Level of participation (in terms of number of paid PC claims) by these pharmacies varied, from a total of 341 to nearly 3,000 paid claims. Similarly, the average number of paid claims per year of participation ranged nearly ten fold, from approximately 50 to 500 claims per year. Three of the ten pharmacies participated in the PC program each of the seven years evaluated and two other pharmacies submitted claims in all but one year (both having an interim year with no claims). Seven of the ten pharmacies are classified as independent pharmacies and two are long-term care facilities. The PC claim intensity rate varied considerably across the ten pharmacies ranging from 3.8 to 188.7 claims per 100 Medicaid recipients.

Table 29 details participation among the top 10 participating pharmacies by year. Since 2000, over one-half of all paid PC claims in each year were paid to these top ten pharmacies. There was variability in the intensity of PC claims per 100 recipients across pharmacies and across years within pharmacies. The top two pharmacies appeared to intervene with patients' drug therapies and submit claims intensively, particularly in the last few years the program has operated. There was some tendency for more intensive activity per recipient among pharmacies with lower numbers of recipients, suggesting a more concerted effort in caring for these patients. Generally, pharmacies with larger numbers of Medicaid recipients had lower PC claim rates per 100 Medicaid recipients. Across time, several pharmacies (#1, #2, #6, and #7) increased their participation

(number of claims paid) dramatically in the last few years of the program, while other pharmacies (#3, #8, #9) maintained a more steady rate of PC claims submission. One pharmacy (#5) submitted all but a handful of its claims in 2003.

Table 30 shows the percentages of paid PC claims in reason, action, result and level of service time categories for the top 10 pharmacies for the program overall. (Appendix C details specific results for each pharmacy by year.) The table reveals that pharmacists at the pharmacies identified different problems, took different actions, had different results and billed for different levels of time when providing PC services. Some pharmacies seemed to key into one or a few predominant reasons for intervening. In particular pharmacies #4, #5, #7, and #8 had more than 70% of all claims associated with one reason code category. Pharmacy #5 had all claims for the Drug Choice reason code category and pharmacy #4 had nearly all claims for the Drug Use/Patient Behavior reason code category. With all claims for pharmacy #5 due to one reason, the action, result, and length of service time codes also were confined to a few codes.

Other pharmacies had a variety of reason, action, result, and service levels represented on paid claims further suggesting that different approaches are being taken toward the program by pharmacies. For example, no reason code category contained a majority of claims in for Pharmacies #2, #9 and #10. Subsequently, action, result, and time code categories were more diverse as well.

Pharmacy #1 and Pharmacy #10 had a majority of paid claims billed in the Drug Use Issues/Problems reason code category. In both pharmacies a majority of the claims had an action of contacting the patient and over 70% of claims in both pharmacies had a result of patient education. Pharmacy 10 billed a higher proportion of claims at 6-15 minutes (65.4%) relative to Pharmacy 1 (38.7%).

The last two columns of Table 30 show percentages of claims in the reason, action, result and time categories for the ten pharmacies with the most paid claims and all pharmacies with at least one paid PC claim. Comparing the two columns suggests that top ten pharmacies focused less on drug choice issues and more on drug use issues/problems relative to all pharmacies. Also, top ten pharmacies appeared to contact patients more often and contact prescribers less often relative to all pharmacies. Consequently, top ten pharmacies focused more on educating patients relative to all pharmacies and had a larger percentage of paid PC claims in the 31-60 minute time level and a lower percentage in the 0-5 minute time level relative to all pharmacies.

DISCUSSION/SUMMARY

Aggregate PC Claims and Pharmacy Participation

Overall, less than one-fifth of provider pharmacies participated in the WMPCP. Over time there has been considerable concentration of claims per participating pharmacy suggesting that the pharmacies that are participating have developed systems to make

providing and getting paid for PC services part of the routine of practice in the pharmacy. The routinization of providing and billing for PC services is an important step for the future of pharmacy practice. Additional research could examine what aspects of practice and/or changes in work environments have promoted the routinization of providing and billing for pharmacist provided PC services.

There have been two major changes in the WMPCP: the implementation of electronic PC claims submission in 1999 and the implementation of PDUR in 2001. These changes have been associated with spikes in the number of pharmacy providers participating in the program and increases in the intensity of paid claims per participating pharmacy. Past research suggests that the perceived and real burden of submitting claims is a barrier to pharmacist participation in PC service programs.[7-9] The two changes in the WMPCP could be considered mechanisms that reduced burden for pharmacists. Electronic claims submission reduced the burden of completing paper claims. PDUR reduces the burden of having to identify a certain class of drug-related problems. A better understanding is needed concerning how these changes to WMPCP are associated with increases in participation and intensity of claims as well as how these changes are associated with decisions to drop out of the program.

Participation in the program is associated with type of pharmacy and size of Medicaid practice. The results show that independent pharmacies have higher participation rates relative to chains and health/system pharmacies. Also, pharmacies with high numbers of Medicaid recipients have higher rates of participation relative to pharmacies with low numbers of Medicaid recipients. Both of these results are consistent with past research.[10] The results suggest that the number of pharmacies with large numbers of Medicaid recipients that are participating has not decreased since 2000. Serving more Medicaid patients increases the opportunity to intervene and provide services. Serving more patients also may make participation worthwhile from a financial standpoint, thus promoting greater continuation in the program relative to participants serving smaller numbers of Medicaid recipients.

Also consistent with past research is the finding that the number of claims per participating pharmacy was higher in pharmacies with higher volumes of Medicaid recipients and in rural pharmacies relative to pharmacies with lower numbers of Medicaid recipients and urban pharmacies, respectively.[10] One explanation is that rural pharmacies may use the opportunity for payment for services as a means to survive in the marketplace. Also, pharmacists in rural pharmacies may know their customers better than pharmacists in urban pharmacies, customer loyalty may be higher and this instills in pharmacists the desire to want to provide for patients to a higher degree than pharmacists in urban pharmacies. Additional research is needed to further examine these differences.

In terms of dropping out of the program, drop out rates appeared to be related to changes in the program. Drop out rates were highest in 2001 and 2002, years during and after the implementation of PDUR (February, 2001). It seems paradoxical that drop out rates would be higher after a change that likely reduced some burden of participation for pharmacists. Perhaps learning the billing system or submitting claims for only a certain segment of a pharmacy's patient population (only Medicaid patients) was too difficult administratively for pharmacists and pharmacy staff despite the transmission of PDUR alerts to pharmacists. Also, PDUR may have prompted pharmacists to try the claim submission process but there wasn't enough support and/or changes made in the

pharmacy to routinize the process and continue participation. Further research is needed to understand the influence of PDUR on drop out rates.

Characteristics of PC Claims

We grouped reason codes into categories to reflect compliance problems (Drug Use:Patient Behaviors), problems related to prescriptions (Drug Choice), and problems with drug use (Drug Use Issues/Problems). Consistent with past research, patient related problems, both in the form of patient behaviors and drug use issues, were the most common reason for pharmacists providing PC services (67.0% of all PC claims).[11] Over time, pharmacists focused more on patient related problems than prescription-related (drug choice) issues. These results are encouraging as they suggest pharmacists are aware of patient problems and are willing to solve them. Also, this trend suggests that pharmacists initially may focus on prescription-related issues to learn the billing system and then move to more complex and likely more frequent patient related drug problems. Additionally it has the possibility of revealing the more humanitarian side of practice. That is an idea of caring for the patient and not just handling the drug.

In terms of pharmacists' actions to solve problems, most often pharmacists contacted patients directly (50.6% of all PC claims). This also is consistent with past research.[11] Over time, there was a trend away from contacting the prescriber and a trend toward the pharmacist acting alone. Both of these trends are consistent with the trend away from focusing on prescription related reasons for intervening. One implication of this finding is that pharmacists need to make sure to communicate to physicians what they do when providing a specific PC service. Maintaining communications with the physician should continue to be a top priority in terms of having support from providers within a community. Also, it is a positive finding that pharmacists tended to work with patients to help them rather than simply refer them and their problem to the physician which can be a default response in a busy pharmacy.

Overall, PC services consumed a small amount of pharmacists' time (6-15 minutes). A similar study found that the average amount of time spent providing a PC service was 7.5 minutes.[11] A unique characteristic of the WMPCP is the use of a multi-tiered length of service time coding structure for billing pharmacist services. The advantage of this type of system is that the reimbursement to pharmacists is consistent with the effort taken to solve problems and thus provides an incentive for pharmacists to intervene in more difficult problems. Also this billing system is reflective of a resource-based value scale and is more similar to coding (i.e. CPT codes) used by physicians. This perhaps serves as a way to get pharmacists in the mindset of billing for services based on level of effort.

Overall, it appears that the length of service time codes were consistent with different approaches to solve problems. It appears that the multi-tiered system compensated pharmacists more equitably for different actions (and the length of time taken) that were required to solve patient problems. Another explanation is that the multi-tiered system induced pharmacists to solve more patient focused problems. The billing system allowed pharmacists to be compensated more for more time intensive services. Patient focused problems were more time intensive, thus leading to more compensation.

Ten Pharmacies with the Most Paid PC Claims

Analyses of the ten pharmacies paid for the most PC claims allowed us to examine in more depth similarities and differences in participation in WMPCP. One aspect of similarity was that 70% of the top ten pharmacies were independent pharmacies, a finding that is similar to past research.11 In terms of variability, there were differences in total claims paid, years of participation, and claims per 100 Medicaid recipients. It appeared that pharmacies with higher numbers of Medicaid recipients had lower PC claim rates per 100 Medicaid recipients. One explanation for this is that pharmacies with larger numbers of Medicaid recipients focus on identifying only a few problems whereas pharmacies with smaller numbers of Medicaid recipients consider all problems. Pharmacies with larger numbers of Medicaid recipients may not be able to develop systems to allow pharmacists to identify all aspects of drug therapy for patients due to the volume of patients seen.

Overall, the top ten pharmacies differed from the remaining participants in several ways. The volume of claims and the length of participation for many of the top ten pharmacies suggest they have a more routinized practice of providing services. The results found that the top ten pharmacies are less likely to focus on drug choice issues and are less likely to contact prescribers. Also, they are more likely to educate patients and to spend more time providing each service. One explanation for these results is that pharmacists and managers at the top ten pharmacies have been able to develop routines that have allowed them to expand the types of services they provide to patients. Second, the work environments in the top ten pharmacies may differ in several ways from other participants. Third, pharmacists, both staff and management, at the top ten pharmacies may have a different approach to practice than other pharmacists. For example, they may be more motivated to participate in the program, or they may be offered different incentives to participate in the program. Further research is needed to better understand factors that contribute to participation and level of participation. Other aspects of this project will examine factors associated with participation in WMPCP.

Limitations

Limitations are highlighted to discuss sources of bias in the results and to help identify the limits of conclusions that can be drawn from the results. Different pharmacists may have interpreted the meaning of codes in different ways leading to pharmacists assigning different codes to similar reasons, actions, or results. We grouped reason, action, and result codes to represent broad areas of reasons, actions, and results of services. Our approach to grouping codes may limit the problem of pharmacists interpreting different codes in different ways due to the broad nature of our grouping strategy.

A concern with the PC claims database is it does not capture pharmacists at pharmacies that provide PC services to Medicaid patients but do not bill the Medicaid program for reimbursement. The practice of providing PC services and not submitting claims may be common especially after the implementation of PDUR. In order for a pharmacist to be reimbursed for a drug claim that is the subject of a PDUR alert, the pharmacist must override the PDUR alert and subsequently fill the prescription and get paid for the drug from Medicaid. Alternatively, the pharmacist can solve the problem identified by the PDUR alert, dispense the drug and get paid for the drug from Medicaid

without submitting a PC claim. We do not know hoe frequently this occurred. Wisconsin Medicaid keeps records of the rates of PDUR override and PDUR problem resolution. Future research could examine pharmacies resolving PDUR alerts to see whether pharmacists at the pharmacies submit claims to the WMPCP and the rate at which this occurs.

This study did not examine patient outcomes (e.g. improved health) or program outcomes (e.g. cost savings) resulting from the services provided by pharmacists in WMPCP. Thus, the current analysis of WMPCP can not say whether this program was cost beneficial. Future research could examine the cost savings to Medicaid attributable to pharmacists dealing with therapeutic substitution issues. Additionally, research could examine whether patient compliance was improved when patients received compliance aids from pharmacists in WMPCP. This research would help better understand the financial and health outcomes of pharmacist PC services.

CONCLUSION

Approximately one-fifth of Medicaid provider pharmacies have been paid for at least one PC claim under the WMPCP. Over the course of the program, the claims have become more concentrated among participating providers suggesting some providers are routinely providing PC services. Two changes in WMPCP (electronic claims submission and PDUR) increased participation and claims volume. Over time, pharmacists increasingly are acting alone and directing efforts at patients, rather than focusing on drug choice issues.

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Section 1: Aggregate PC Claims and Pharmacy Participation

Table 1
Number of Paid PC Claims, Pharmacy Providers and Mean Number of Claims per Provider in WMPCP

Fiscal Year	Number of Paid PC Claims	Number of Pharmacy Providers Paid for at Least One PC Claim	Number of Medicaid Pharmacy Providers	Percent of Medicaid Pharmacy Providers Paid for at Least One PC Claim	Mean Number of Paid Claims per Participating Pharmacy
1997	1,439	153	1,286	11.9	9.41
1998	1,452	121	1,269	9.5	12.00
1999	806	73	1,246	5.9	11.04
2000	1,309	73	1,249	5.8	17.93
2001	3,235	170	1,235	13.8	19.03
2002	3,653	116	1,238	9.4	31.46
2003	6,501	101	1,248	8.1	64.37
Total	**18,395**	**359[a]**	**1,848[b]**	**19.4**	**51.24**

[a] Represents the number of unique pharmacy providers paid for at least one PC claim between FY 1997 and FY 2003.
[b] Represents the number of unique Medicaid pharmacy providers between FY 1997 and FY 2003.

Table 2
Characteristics of Participating Pharmacy Providers by Year

	1997	1998	1999	2000	2001	2002	2003
Pharmacy Type							
Independent	98	78	56	41	73	56	44
	(64.7)	(64.5)	(77.0)	(56.2)	(43.5)	(49.1)	(44.6)
Chain	26	13	4	12	52	21	23
	(17.0)	(10.7)	(5.4)	(16.4)	(30.2)	(17.8)	(22.3)
Health System/Clinic	26	26	11	18	39	34	30
	(16.3)	(21.5)	(15.1)	(24.7)	(22.9)	(28.8)	(29.1)
Long-Term Care	3	4	2	2	6	5	4
	(1.8)	(3.3)	(1.4)	(2.7)	(2.9)	(3.4)	(3.0)
Location							
Urban	56	43	20	35	78	58	66
	(36.6)	(35.5)	(27.4)	(47.9)	(45.9)	(50.0)	(65.3)
Rural	97	78	53	38	92	58	35
	(63.4)	(64.5)	(72.6)	(52.1)	(54.1)	(50.0)	(34.7)
Medicaid Recipient Volume							
High	19	9	4	9	22	17	22
	(12.4)	(7.4)	(5.5)	(12.3)	(12.9)	(14.7)	(21.8)
Medium	33	22	14	12	34	19	25
	(21.6)	(18.2)	(19.2)	(16.4)	(20.0)	(16.4)	(24.3)
Low	101	90	55	52	114	80	54
	(66.0)	(74.4)	(75.3)	(71.3)	(67.1)	(68.9)	(53.5)
Total	**153**	**121**	**73**	**73**	**170**	**116**	**101**

Note: Numbers in parentheses are percentages within participating pharmacies by year. Pharmacy type was determined by pharmacy provider name recognition by the authors. Some Medicaid pharmacy providers could not be categorized by type (n = 35) and some were medical providers (n = 15). Urban was defined as a city or contiguous area with 50,000 or more population. Rural was an area with less than 50,000 population. A total of 169 pharmacy providers could not be

categorized into urban/rural location due to lack of information about location. Pharmacies with 0 to500, 501 to 1000, and >1000 Medicaid recipients were categorized into Low, Medium, and High category, respectively.

Table 3

Average Paid PC claims per Participating Pharmacy by Pharmacy Characteristics, Overall and by Year

Category \ Year	1997	1998	1999	2000	2001	2002	2003
Pharmacy Type							
Independent	11.2	14.4	12.7	14.9	22.7	31.2	59.1
Chain	7.8	5.8	2.5	3.2	6.9	7.1	10.5
Health System/Clinic	4.7	8.5	7.5	11.8	14.5	17.1	19.9
Long-term Care	4.7	8.8	2.0	224.5	109.0	234.4	766.0
Location							
Urban	10.7	14.8	10.0	17.5	15.7	21.5	46.7
Rural	8.6	10.4	11.5	18.3	21.9	41.5	97.7
Medicaid Recipient Volume							
High	13.0	21.3	13.0	54.9	35.3	104.9	168.6
Medium	11.9	13.7	10.1	26.1	29.4	18.4	39.8
Low	7.9	10.6	11.1	9.7	12.8	19.0	33.3

Note: Pharmacy type was determined by pharmacy provider name recognition by the authors. Some Medicaid pharmacy providers could not be categorized by type (n = 35) and some were medical providers (n = 15). Urban was defined as a city or contiguous area with 50,000 or more population. Rural was an area with less than 50,000 population. A total of 169 pharmacy providers could not be categorized into urban/rural location due to lack of information about location. For example, some pharmacies were listed as "Walgreens #0898" or "Aurora Pharmacy # 452". Pharmacies with 0 to500, 501 to 1000, and >1000 Medicaid recipients were categorized into Low, Medium, and High category, respectively.

Table 4
Pharmacy Participation Rate by Pharmacy Type by Year

Type	\ Year	1997	1998	1999	2000	2001	2002	2003
Independent	**Number**	518	478	456	440	421	415	404
	Number Participating	98	78	56	41	73	56	44
	Participation Rate	0.19	0.16	0.12	0.09	0.17	0.13	0.11
Chain	**Number**	387	404	407	440	460	456	446
	Number Participating	26	13	4	12	52	21	23
	Participation Rate	0.07	0.03	0.01	0.03	0.11	0.05	0.05
Health System / Clinic	**Number**	236	257	273	280	280	298	325
	Number Participating	26	26	11	18	39	34	30
	Participation Rate	0.11	0.10	0.04	0.06	0.14	0.11	0.09
Long-term Care	**Number**	114	105	89	70	60	55	55
	Number Participating	3	4	2	2	6	5	4
	Participation Rate	0.03	0.04	0.02	0.03	0.10	0.09	0.07

Note: Pharmacy type was determined by pharmacy provider name recognition by the authors. Some Medicaid pharmacy providers could not be categorized by type (n = 35) and some were medical providers (n = 15).

Table 5
Pharmacy Participation Rate by Urban/Rural Location by Year

Type	\ Year	1997	1998	1999	2000	2001	2002	2003
Urban	**Number**	561	554	562	565	561	565	551
	Number Participating	56	43	20	35	78	58	66
	Participation Rate	0.10	0.08	0.04	0.06	0.14	0.10	0.12
Rural	**Number**	643	645	637	654	638	638	645
	Number Participating	97	78	53	38	92	58	35
	Participation Rate	0.15	0.12	0.08	0.06	0.14	0.09	0.05

Note: Urban was defined as a city or contiguous area with 50,000 or more population. Rural was an area with less than 50,000 population. A total of 169 pharmacy providers could not be categorized into urban/rural location due to lack of information about location.

Table 6
Pharmacy Participation Rate by Medicaid Recipient Volume by Year

Rank	\ Year	1997	1998	1999	2000	2001	2002	2003
High	**Number**	79	59	60	69	71	79	93
	Number Participating	19	9	4	9	22	17	22
	Participation Rate	0.24	0.15	0.07	0.13	0.31	0.22	0.24
Medium	**Number**	177	112	94	138	141	162	181
	Number Participating	33	22	14	12	34	19	25
	Participation Rate	0.19	0.20	0.15	0.09	0.24	0.12	0.14
Low	**Number**	1,030	1,098	1,092	1,042	1,023	997	974
	Number Participating	101	90	55	52	114	80	54
	Participation Rate	0.10	0.08	0.05	0.05	0.11	0.08	0.06

Note: Pharmacies with 0 to500, 501 to 1000, and >1000 Medicaid recipients were categorized into Low, Medium, and High category, respectively.

Table 7
Pattern of Pharmacy Participation in WMPCP by Year

	1997	1998	1999	2000	2001	2002	2003
Pharmacies paid for Claims	153	121	73	73	170	116	101
Paid for First Claim	153	33	8	24	85	26	30
Paid for a Claim the Previous Year	--	88	59	36	53	84	61
Paid for a Claim the Previous Two Years		--	45	32	28	37	53
Paid for a Claim the Previous Three Years			--	27	27	22	28
Paid for a Claim the Previous Four Years				--	22	21	18
Paid for a Claim the Previous Five Years					--	17	17
Paid for a Claim the Previous Six Years						--	15
Paid for at Least One Claim This Year and Never Again	46	40	17	20	80	55	--
General Drop Out Rate (%)[a]	30.1	33.1	23.3	27.4	47.1	47.4	
Paid for First Claim This Year and Never Again	46	13	4	9	48	18	--
Same Year Drop Out Rate (%)[b]	30.1	39.4	50.0	37.5	56.5	69.2	

Note:
[a]General annual drop out rate calculated as (number of pharmacies paid for at least one claim this year and never again/ number of pharmacies paid for claims).
[b]Same Year drop out rate defined as the number of pharmacies that drop-out of the program in the same year they are paid for their first claim and was calculated as (number of pharmacies paid for first claim this year and never again/ number of pharmacies paid for claims).

Table 8
Distribution of PC Claims by Pharmacy Providers: 1997-2003

Number of Claims/ Pharmacy Paid for a PC Claim	Number of Pharmacies Paid for a PC Claim	Percent of All Pharmacies Paid for a PC Claim	Number Of PC Claims	Percent Of PC Claims	Mean Number of Medicaid Recipients per Pharmacy Paid for a PC Claim	Rate of PC Claims*
1	84	23.4	84	0.5	401	0.2
2-5	94	26.2	271	1.5	541	0.5
6-10	46	12.8	344	1.9	1,202	0.6
11-20	42	11.7	610	3.3	1,400	1.0
21-50	45	12.5	1,521	8.2	1,997	1.7
51-100	16	4.5	1,147	6.2	1,535	4.7
>100	32	8.9	14,427	78.4	3,546	12.7
Total	**359**	**100**	**18,395**	**100**	**1,188**	

Note: The largest number of claims/submitting pharmacy was 2,945.
* Rate of PC claims was calculated as (number of PC claims per pharmacy /mean number of Medicaid recipients per Pharmacy)* 100.

Table 9

Characteristics of Participating Pharmacies by Deciles of PC Claim Volume by Year

	1997	1998	1999	2000	2001	2002	2003
Top 10% of Pharmacies							
Number of Pharmacies	15	12	7	7	17	12	10
Number of PC claims	793	832	383	950	2,145	2,643	5,233
Percent of all PC claims	55.1	57.3	47.5	72.6	66.3	72.4	80.5
Mean number of drug claims	14,288	13,595	13,345	19,115	21,029	29,764	98,736
Mean number of Medicaid recipients	703	724	505	549	1,014	1,226	1,845
Rate of claims per 100 Medicaid recipients	7.5	9.6	10.8	24.7	12.4	18.0	28.4
Top 20% of Pharmacies							
Number of Pharmacies	31	24	15	15	34	23	20
Number of PC claims	1,032	1,064	549	1,109	2,638	3,132	5,850
Percent of all PC claims	71.7	73.3	68.1	84.7	81.5	85.7	90.0
Mean number of drug claims	11,097	11,368	9,632	15,088	15,518	20,950	56,250
Mean number of Medicaid recipients	569	553	385	475	707	882	1,509
Rate of claims per 100 Medicaid recipients	5.9	8.0	9.5	15.6	11.0	15.4	19.4
Top 30% of Pharmacies							
Number of Pharmacies	46	36	22	22	51	35	30
Number of PC Claims	1,162	1,197	626	1,174	2,871	3,380	6,096
Percent of all PC claims	80.8	82.4	77.7	89.7	88.7	92.5	93.8
Mean number of drug claims	13,295	14,457	9,179	11,601	20,850	16,650	43,234
Mean number of Medicaid recipients	597	563	377	448	727	684	1,235
Rate of claims per 100 Medicaid recipients	4.2	5.9	7.5	11.9	7.7	14.1	16.5

Note: Rate of PC claims was calculated as (mean number of PC claims per pharmacy/mean number of Medicaid recipients) * 100.

Section 2: Characteristics of PC Claims

Table 10
Frequency of Reason Codes Overall and By Year

	1997	1998	1999	2000	2001	2002	2003	Total
Late Refill	225	275	140	164	639	852	945	3,240
Product Selection Opportunity	6	13	8	99	775	419	1,392	2,712
In-home Medication Management	0	101	65	497	284	316	762	2,025
Suboptimal Compliance	30	64	61	160	281	297	928	1,821
Patient Complaint/Symptom	36	16	10	51	59	536	702	1,410
Early Refill	117	97	52	27	211	260	279	1,043
Side Effect Precaution	5	2	0	51	137	257	575	1,027
Therapeutic Duplication	60	59	17	15	100	153	165	569
Chronic Disease Management- Asthma	125	83	24	40	162	54	57	545
Suboptimal Regimen	67	30	24	29	107	115	127	499
Possible Drug Misuse	21	14	3	19	107	83	180	427
New Drug	73	252	94	2	0	0	0	421
Drug-drug Interaction	98	65	49	24	67	55	53	411
High Dose	99	48	21	18	60	33	55	334
Drug Allergy	70	55	32	32	46	51	44	330
Suboptimal Dosage Form	41	29	25	23	37	27	22	204
Low Dose	39	30	24	17	37	17	27	191
Additive Toxicity	9	17	10	13	22	39	64	174
Additional Drug Needed	31	19	13	8	24	19	54	168
Prior Authorization	39	73	53	0	0	0	0	165
Adverse Drug Reaction	14	9	11	7	20	20	19	100
Unnecessary Drug	41	15	4	4	9	15	10	98
Patient Request	47	17	23	0	0	0	0	87
Excessive Duration	18	8	7	1	7	9	7	57
Lock-in Recipient	19	7	5	0	6	0	4	41
Forgery Possible	8	3	3	0	8	5	12	39
Excessive Quantity	4	6	1	3	12	9	4	39

Insufficient Quantity	8	4	1	2	6	6	11	38
Missing Information on Prescription	21	7	6	0	0	0	0	34
Lab Test Needed	11	4	1	3	7	2	3	31
Duplication	16	6	6	0	0	0	0	28
Drug-Disease Interaction	11	13	2	0	0	0	0	26
Insufficient Duration	5	1	1	0	5	4	0	16
Drug-Age Interaction	8	2	3	0	0	0	0	13
Drug-Reaction	7	0	1	0	0	0	0	8
Drug-Pregnancy Interaction	3	3	1	0	0	0	0	7
MD Requested Information	3	2	2	0	0	0	0	7
Iatrogenic	1	2	1	0	0	0	0	4
Disease-Diabetes	0	1	2	0	0	0	0	3
IV Drug Incompatibility	1	0	0	0	0	0	0	1
Drug-Gender Interaction	1	0	0	0	0	0	0	1
Drug-Alcohol Interaction	1	0	0	0	0	0	0	1
Total	**1,439**	**1,452**	**806**	**1,309**	**3,235**	**3,653**	**6,501**	**18,395**

Table 11
Frequency of Reason Code Categories Overall and By Year

	1997	1998	1999	2000	2001	2002	2003	Total
Drug Use: Patient Behaviors	393	551	321	867	1,522	1,808	3,094	**8,556**
	(27.3)	(37.9)	(39.8)	(66.2)	(47.0)	(49.5)	(47.6)	**(46.5)**
Drug Choice	666	484	295	280	1,290	952	1,981	**5,948**
	(46.3)	(33.3)	(26.6)	(21.4)	(39.9)	(26.1)	(30.5)	**(32.3)**
Drug Use Issues/Problems	342	403	181	159	402	886	1,407	**3,780**
	(23.8)	(27.8)	(22.5)	(12.1)	(12.4)	(24.3)	(21.6)	**(20.5)**
Other	38	14	9	3	21	7	19	**111**
	(2.6)	(1.0)	(1.1)	(0.3)	(0.7)	(0.1)	(0.3)	**(0.7)**
Total	**1,439**	**1,452**	**806**	**1,309**	**3,235**	**3,653**	**6,501**	**18,395**

Note:
Numbers in parentheses are column percentages.
Drug Use:Patient Behaviors includes Late Refill, In-home Medication Management, Suboptimal Compliance, Early Refill, Possible Drug Misuse.
Drug Choice includes Product Selection Opportunity, Drug-drug Interaction, Therapeutic Duplication, Suboptimal Regimen, High Dose, Drug Allergy, Suboptimal Dosage Form, Low Dose, Additive Toxicity, Unnecessary Drug, Excessive Duration, Excessive Quantity, Insufficient Quantity, Missing Information on Prescription, Insufficient Duration, IV Drug Incompatibility, Prior Authorization, Drug-Disease Interaction, Drug-Age Interaction, Drug-Pregnancy Interaction, Drug-Gender Interaction, Drug-Alcohol Interaction.
Drug Use Issues/Problems includes Patient Complaint/Symptom, Side Effect Precaution, Chronic Disease Management – Asthma, New Drug, Additional Drug Needed, Adverse Drug Reaction, Disease- Diabetes, Patient Request, Drug Reaction, MD Requested Information, Iatrogenic.
Other includes Forgery Possible, Lab Test Need, Lock-in Recipient.

Table 12
Frequency of Action Codes Overall and By Year

	1997	1998	1999	2000	2001	2002	2003	Total
Patient Education	252	471	200	298	1,092	1,383	1,825	5,521
Prescriber Contacted	908	618	335	280	965	954	1,215	5,275
Patient Assessment	54	114	110	246	328	868	1,689	3,409
Therapeutic Product Substitution	4	13	5	99	775	419	1,392	2,707
Patient Education (with Early Refill)	187	188	132	1	0	0	0	508
Medication Review	3	24	14	371	39	17	7	475
Coordination of Care	16	16	8	10	26	10	361	447
Recommend Lab Test	13	6	2	4	8	2	11	46
Consulted Other Contact	2	1	0	0	0	0	1	4
Payer/processor Contacted	0	1	0	0	2	0	0	3
Total	1,439	1,452	806	1,309	3,235	3,653	6,501	18,395

Note: The reduction in the frequency of the Patient Education (with Early Refill) code likely was due to a coding change in which this code was changed to changed to Patient Education. The increase in the frequency of the Therapeutic Product Substitution code likely was due to changes in 1999 which allowed pharmacists to bill for these actions and the introduction of the electronic claims submission system.

Table 13
Frequency of Action Code Categories Overall and By Year

	1997	1998	1999	2000	2001	2002	2003	Total
Patient Contacted	469	723	393	545	1,420	2,251	3,514	**9,315**
	(32.6)	(49.8)	(48.8)	(41.6)	(43.9)	(61.6)	(54.1)	**(50.6)**
Prescriber Contacted	908	618	335	280	965	954	1,215	**5,275**
	(63.1)	(42.6)	(41.6)	(21.4)	(29.8)	(26.1)	(18.7)	**(28.7)**
Pharmacist Alone	60	109	78	484	848	448	1,771	**3,798**
	(4.2)	(7.5)	(9.7)	(37.0)	(26.2)	(12.3)	(27.2)	**(20.6)**
Other Consult	2	2	0	0	2	0	1	7
	(0.1)	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	()	**(0.1)**
Total	**1,439**	**1,452**	**806**	**1,309**	**3,235**	**3,653**	**6,501**	**18,395**

Note:
Actions indicate who was the target of a pharmacist's efforts. Numbers in parentheses are column percentages
Patient Contacted includes Patient Education, Patient Assessment, Patient Education (with Early Refill).
Other Consult includes Payer/Processor Contacted, Consulted Other Contact.
Prescriber Contacted includes MD Contacted.
Pharmacist Alone includes Therapeutic Product, Medication Review, Med Literature Search, Coordination of Care, Recommend Lab Test.

Table 14
Frequency of Result Codes Overall and By Year

	1997	1998	1999	2000	2001	2002	2003	Total
Instructions Understood	209	385	151	668	1,161	1,899	2,948	7,421
Filled, Different Drug	8	20	9	195	1,021	664	1,698	3,615
Compliance Aid	19	39	33	272	471	539	1,280	2,653
Filled, Different Directions	172	97	52	57	188	193	212	971
Not Filled	144	81	44	33	172	188	191	853
Change Regimen	247	299	153	1	0	0	0	700
Filled, Different Dose	81	57	26	55	141	110	110	580
MD Change Med	230	160	107	0	0	0	0	497
Filled, Different Quantity	21	19	6	8	49	31	39	173
Unknown	39	73	53	0	0	0	0	165
Filled, Dose Form Change	14	15	13	17	32	29	23	143
Train and System (Med Mgmt)	11	66	65	0	0	0	0	142
Accepted by MD	52	38	26	2	0	0	0	118
MD Discontinued Drug	73	25	8	0	0	0	0	106
Filled, No Change	38	33	25	0	0	0	0	96
Patient Information Supplied	35	17	9	0	0	0	0	61
Filled, MD OK	24	18	12	1	0	0	0	55
Patient Accepted Information	18	5	10	0	0	0	0	33
No Change	4	4	2	0	0	0	0	10
Filled, False +	0	0	2	0	0	0	0	2
Not Accept Lab Request	0	1	0	0	0	0	0	1
Total	**1,439**	**1,452**	**806**	**1,309**	**3,235**	**3,653**	**6,501**	**18,395**

Table 15

Frequency of Result Code Categories Overall and By Year

	1997	1998	1999	2000	2001	2002	2003	Total
Patient Informed	262	407	170	668	1,161	1,899	2,948	**7,515**
	(18.2)	(28.0)	(21.1)	(51.0)	(35.9)	(52.0)	(45.3)	**(40.9)**
Adjusted Fill	773	667	366	333	1,431	1,027	2,082	**6,679**
	(53.7)	(45.9)	(45.4)	(25.4)	(44.2)	(28.1)	(32.0)	**(36.3)**
Compliance Aid Provided	30	105	98	272	471	539	1,280	**2,795**
	(2.1)	(7.2)	(12.2)	(20.8)	(14.6)	(14.8)	(19.7)	**(15.2)**
Not Filled	217	106	52	33	172	188	191	**959**
	(15.1)	(7.2)	(6.5)	(2.5)	(5.3)	(5.1)	(3.0)	**(5.2)**
Other	115	130	91	3	0	0	0	**339**
	(8.0)	(9.0)	(11.3)	(0.3)	(0.0)	(0.0)	(0.0)	**(1.8)**
Unadjusted Fill	42	37	29	0	0	0	0	**108**
	(2.9)	(2.7)	(3.5)	(0.0)	(0.0)	(0.0)	(0.0)	**(0.6)**
Total	**1,439**	**1,452**	**806**	**1,309**	**3,235**	**3,653**	**6,501**	**18,395**

Note:

Numbers in parentheses are column percentages.

Adjusted Fill includes Filled, Different Directions, Filled, Different Dose, Filled, Different Drug, Filled, Dose Form Changed, Filled, Different Quantity, MD Change Med, Change Regimen.

Not Filled includes Not Filled, MD Discontinued Drug.

Compliance Aid Provided includes Compliance Aid, Train and System.

Patient Informed includes Instructions Understood, Patient Information Supplied, Patient Accepted Information.

Unadjusted Fill includes Filled, No Change, Filled False +, No Change.

Other includes Unknown, Accepted by MD, Filled, MD OK, Not Accept Lab Request.

Table 16
Frequency of Length of Service Time Codes Overall and By Year

	1997	1998	1999	2000	2001	2002	2003	Total
0-5 minutes	361	303	121	134	531	508	1,277	**3,235**
	(25.1)	(20.9)	(15.0)	(10.2)	(16.4)	(13.9)	(19.6)	**(17.6)**
6-15 minutes	534	554	255	418	1,353	1,605	2,391	**7,110**
	(37.1)	(38.2)	(31.6)	(31.9)	(41.8)	(43.9)	(36.8)	**(38.7)**
16-30 minutes	403	352	248	150	525	820	964	**3,462**
	(28.0)	(24.2)	(30.8)	(11.5)	(16.2)	(22.4)	(10.7)	**(18.8)**
31-60 minutes	116	232	170	600	714	704	1,861	**4,397**
	(8.1)	(16.0)	(21.1)	(45.8)	(22.1)	(19.3)	(28.6)	**(23.9)**
>60 minutes	25	11	12	7	112	16	8	**191**
	(1.7)	(0.7)	(1.5)	(0.6)	(3.5)	(0.5)	(0.3)	**(1.0)**
Total	**1,439**	**1,452**	**806**	**1,309**	**3,235**	**3,653**	**6,501**	**18,395**

Note: Numbers in parentheses are column percentages.

Table 17

Frequency of Reason Code Categories by Action Code Categories

	Patient Contacted	Prescriber Contacted	Pharmacist Alone	Other Consult	Total
Drug Use:Patient Behavior	6,083	1,597	876	0	**8,556**
	(71.1)	(18.7)	(10.2)	(0.0)	
Drug Choice	1	3,072	2,875	0	**5,948**
	(0.02)	(51.7)	(48.3)	(0.0)	
Drug Use:Issues/Problems	3,227	545	8	0	**3,780**
	(85.4)	(14.4)	(0.2)	(0.0)	
Other	4	61	39	7	**111**
	(3.6)	(55.0)	(35.1)	(6.3)	
Total	**9,315**	**5,275**	**3,798**	**7**	**18,395**

Note: Numbers in parentheses are row percentages.

Table 18
Frequency of Reason Code Categories by Result Code Categories

	Adjusted Fill	Not Filled	Compliance Aid Provided	Patient Informed	Unadjusted Fill	Other	Total
Drug Use:Patient Behavior	1,248	214	2,779	4,290	15	10	**8,556**
	(14.6)	(2.5)	(32.5)	(50.1)	(0.2)	(0.1)	
Drug Choice	5,029	609	0	0	80	230	**5,948**
	(84.6)	(10.2)	(0.0)	(0.0)	(1.3)	(3.9)	
Drug Use:Issues/Problems	389	69	16	3,220	3	83	**3,780**
	(10.3)	(1.8)	(0.4)	(85.2)	(0.1)	(2.2)	
Other	13	67	0	5	10	16	**111**
	(11.7)	(60.4)	(0.0)	(4.5)	(9.0)	(14.4)	
Total	**6,679**	**9,59**	**2,795**	**7,515**	**108**	**339**	**18,395**

Note: Numbers in parentheses are row percentages.

Table 19
Frequency of Action Code Categories by Result Code Categories

	Adjusted Fill	Not Filled	Compliance Aid Provided	Patient Informed	Unadjusted Fill	Other	Total
Patient Contacted	579	26	2,522	6,187	1	0	**9,315**
	(6.2)	(0.3)	(27.1)	(66.4)	(0.01)	(0.0)	
Prescriber Contacted	3,359	904	250	474	99	189	**5,275**
	(63.7)	(17.1)	(4.7)	(9.0)	(1.9)	(3.6)	
Pharmacist Alone	2,741	24	23	853	7	150	**3,798**
	(72.2)	(0.6)	(0.6)	(22.5)	(0.2)	(4.0)	
Other Consult	0	5	0	1	1	0	7
	(0.0)	(71.4)	(0.0)	(14.3)	(14.3)	(0.0)	
Total	**6,679**	**959**	**2,795**	**7,515**	**108**	**339**	**18,395**

Note: Numbers in parentheses are row percentages.

Table 20

Frequency of Reason Code Categories, Action Code Categories, and Results Code Categories by Length of Service Time Codes

	0-5 Minutes	6-15 Minutes	16-30 Minutes	31-60 Minutes	> 60 Minutes	Total
Reason Code Categories						
Drug Use:Patient Behavior	898	3,012	704	3,828	114	**8,556**
	(10.5)	(35.2)	(8.2)	(44.7)	(1.3)	
Drug Choice	1,992	2,495	1,015	409	37	**5,948**
	(33.5)	(41.9)	(17.1)	(6.9)	(0.6)	
Drug Use:Issues/Problems	328	1,566	1,712	144	30	**3,780**
	(8.7)	(41.4)	(45.3)	(3.8)	(0.8)	
Other	17	37	31	16	10	**111**
	(15.3)	(33.3)	(27.9)	(14.4)	(9.0)	
Action Code Categories						
Patient Contacted	1,009	3,888	1,969	2,386	63	**9,315**
	(10.8)	(41.7)	(21.1)	(25.6)	(0.8)	
Prescriber Contacted	716	2,197	1,312	938	112	**5,275**
	(13.6)	(41.7)	(24.9)	(17.8)	(2.1)	
Pharmacist Alone	1,510	1,023	180	1,070	15	**3,798**
	(39.8)	(26.9)	(4.7)	(28.2)	(0.4)	
Other Consult	0	2	1	3	1	**7**
	(0.0)	(28.6)	(14.3)	(42.9)	(14.3)	
Result Code Categories						
Adjusted Fill	2,006	2,883	1,305	436	49	**6,679**
	(30.0)	(43.2)	(19.5)	(6.5)	(0.7)	
Not Filled	133	469	265	79	13	**959**
	(13.9)	(48.9)	(27.6)	(8.2)	(1.4)	
Compliance Aid	49	245	102	2,322	77	**2,795**
	(1.8)	(8.8)	(3.6)	(83.1)	(2.8)	

Patient Informed	858	3,385	1,702	1,522	48	**7,515**
	(11.4)	(45.0)	(22.7)	(20.3)	(0.6)	
Unadjusted Fill	37	41	28	1	1	**108**
	(34.3)	(38.0)	(25.9)	(0.9)	(0.9)	
Other	152	87	60	37	3	**339**
	(44.8)	(25.7)	(17.7)	(10.9)	(0.9)	

Note: Numbers in parentheses are row percentages.

Table 21
Frequency of Action/Result Code Combinations

Action / Result	Frequency (%)
Prescriber Contacted / Adjusted Fill	3359 (18.3)
Prescriber Contacted / Not Filled	904 (4.9)
Prescriber Contacted / Other	538 (2.9)
Prescriber Contacted / Patient Informed	474 (2.6)
Patient Contacted / Patient Informed	6187 (33.6)
Patient Contacted / Compliance Aid	2522 (13.7)
Patient Contacted / Other	606 (3.3)
Pharmacist Alone / Adjusted Fill	2741 (14.9)
Pharmacist Alone / Patient Informed	853 (4.6)
Pharmacist Alone / Other	204 (1.1)
Others	7 (<0.1)

Table 22
Frequency of Action/Result Combination Code Categories by Reason Code Categories

Action/Result Combination \ Reason	Frequency (% in column)			
	Drug Use: Patient Behavior	Drug Choice	Drug Use Issues/Problems	Other
Prescriber Contacted / Adjusted Fill	669 (7.8)	2,,304 (38.7)	386 (10.2)	0
Prescriber Contacted / Not Filled	190 (2.2)	592 (9.9)	69 (1.8)	53 (47.8)
Prescriber Contacted / Other	275 (3.2)	176 (3.0)	80 (2.1)	7 (6.3)
Prescriber Contacted / Patient Informed	463 (5.4)	0	10 (0.3)	1 (0.9)
Patient Contacted / Patient Informed	2,975 (34.8)	0	3,210 (84.9)	2 (1.8)
Patient Contacted / Compliance Aid	2,506 (29.3)	0	16 (0.4)	0
Patient Contacted / Other	602 (7.0)	1 (<0.1)	1 (<0.1)	2 (1.8)
Pharmacist Alone / Adjusted Fill	1 (<0.1)	2,724 (45.8)	3 (0.1)	13 (11.7)
Pharmacist Alone / Patient Informed	852 (10.0)	0	0	1 (0.9)
Pharmacist Alone / Other	23 (0.3)	151 (2.5)	5 (0.1)	25 (22.5)
Others	0	0	0	7 (6.3)

Table 23
Frequency of Action/Result Combination Code Categories by Time Codes

Action/Result Combination \ Time	Frequency (% in row)				
	0-5 minutes	6-15 minutes	16-30 minutes	31-60 minutes	61 or more minutes
Prescriber Contacted / Adjusted Fill	525 (15.6)	1,590 (47.3)	970 (28.9)	240 (7.1)	34 (1.0)
Prescriber Contacted / Not Filled	118 (13.1)	446 (49.3)	255 (28.2)	73 (8.1)	12 (1.3)
Prescriber Contacted / Other	63 (11.7)	125 (23.2)	74 (13.7)	213 (39.6)	63 (11.7)
Prescriber Contacted / Patient Informed	10 (2.1)	36 (7.6)	13 (2.7)	412 (86.9)	3 (0.6)
Patient Contacted / Patient Informed	848 (13.7)	3,349 (54.1)	1,689 (27.3)	257 (4.1)	44 (0.7)
Patient Contacted / Compliance Aid	48 (1.9)	237 (9.4)	97 (3.8)	2,122 (84.1)	18 (0.7)
Patient Contacted / Other	113 (18.6)	302 (49.8)	183 (30.2)	7 (1.2)	1 (0.2)
Pharmacist Alone / Adjusted Fill	1,380 (50.4)	1,002 (36.6)	155 (5.6)	190 (6.9)	14 (0.5)
Pharmacist Alone / Patient Informed	0	0	0	852 (99.9)	1 (0.1)
Pharmacist Alone / Other	130 (63.7)	21 (10.3)	25 (12.3)	28 (13.7)	0
Others	0	2 (28.6)	1 (14.39)	3 (42.9)	1 (14.3)

Section 3: Drugs Associated with PC Claims

Table 24
Frequency of Number of Drugs Associated with PC Claims Overall and By Year

Number	1997	1998	1999	2000	2001	2002	2003	Overall
0	196 (13.6%)	111 (7.6%)	65 (8.1%)	9 (0.7%)	36 (1.1%)	63 (1.7%)	108 (1.7%)	588 (3.2%)
1	1,059 (73.6%)	907 (62.5%)	435 (53.9%)	1,287 (98.3%)	3,199 (98.9%)	3,589 (98.3%)	6,393 (98.3%)	16,869 (91.7%)
2	102 (7.1%)	183 (12.6%)	134 (16.7%)	7 (0.5%)	0	1 (<0.1%)	0	427 (2.3%)
3	38 (2.6%)	100 (6.9%)	59 (7.3%)	2 (0.2%)	0	0	0	199 (1.1%)
>3	44 (3.1%)	151 (10.4%)	113 (14.0%)	4 (0.3%)	0	0	0	312 (1.7%)

Table 25

Frequency of 20 Most Common 6-Digit AHFS Code Therapeutic Categories of Drugs Associated with PC Claims – Overall

AHFS		Frequency	Percent
564001	H2 Receptor Antagonists	1,247	6.8
240405	ACE Inhibitors	1,092	5.9
281604	Antidepressants	809	4.4
121200	Sympathomimetic (Adrenergic) Agents	734	4.0
280808	Opiate Agonists	722	3.9
281605	SSRIs	712	3.9
281608	Antipsychotics	631	3.4
683604	Thyroid Agents	625	3.4
999900	Unknown/missing	622	3.4
240600	Antilipemic Agents	605	3.3
120804	Antiparkinsonian Agents	546	3.0
280804	NSAIDs	524	2.8
240403	Beta Blockers	514	2.8
281292	Miscellaneous Anticonvulsants	465	2.5
402800	Diuretics	462	2.5
081212	Macrolides	355	1.9
920000	Unclassified Therapeutic Agents	339	1.8
081216	Penicillins	333	1.8
680400	Adrenals	320	1.7
682092	Miscellaneous Antidiabetic Agents	318	1.7

Note: This table summarizes information for the first and/or only drug listed in PC claims.

Table 26

Frequency of Ten Most Common Therapeutic Categories of Drugs Associated with PC Claims (Six-digit AHFS Code) by Year

AHFS		1997	1998	1999	2000	2001	2002	2003	Overall
564001	H2 Receptor Antagonists	43 (3.0%)	64 (4.4%)	29 (3.6%)	77 (5.9%)	130 (4.0%)	71 (1.9%)	833 (12.8%)	1,247 (6.8%)
240405	ACE Inhibitors	32 (2.2%)	31 (2.1%)	20 (2.5%)	25 (1.9%)	520 (16.1%)	260 (7.1%)	204 (3.1%)	1,092 (5.9%)
281604	Antidepressants	30 (2.1%)	39 (2.6%)	34 (4.2%)	74 (5.7%)	129 (4.0%)	231 (6.3%)	272 (4.2%)	809 (4.4%)
121200	Sympathomimetic (Adrenergic) Agents	145 (10.1%)	105 (7.2%)	49 (6.1%)	59 (4.5%)	109 (3.4%)	97 (2.6%)	170 (2.6%)	734 (4.0%)
280808	Opiate Agonists	41 (2.8%)	56 (3.9%)	20 (2.5%)	36 (2.7%)	131 (4.1%)	178 (4.9%)	260 (4.0%)	722 (3.9%)
281605	SSRIs	35 (2.4%)	25 (1.7%)	38 (4.7%)	55 (4.2%)	99 (3.1%)	205 (5.6%)	255 (3.9%)	712 (3.8%)
281608	Antipsychotics	22 (1.5%)	25 (1.7%)	16 (2.0%)	87 (6.6%)	136 (4.2%)	115 (3.1%)	230 (3.5%)	631 (3.4%)
683604	Thyroid Agents	19 (1.3%)	19 (1.3%)	7 (0.8%)	41 (3.1%)	34 (1.0%)	43 (1.2%)	462 (7.1%)	625 (3.4%)
999900	Unknown/missing	201 (13.9%)	119 (8.2%)	68 (8.4%)	11 (0.8%)	40 (1.2%)	66 (1.8%)	117 (1.8%)	622 (3.4%)
240600	Antilipemic Agents	22 (1.5%)	38 (2.6%)	17 (2.1%)	17 (1.3%)	85 (2.6%)	153 (4.2%)	273 (4.2%)	605 (3.3%)

Note: Numbers in parentheses represent percentages of all claims in a particular year.

Table 27
Top Ten Drug Therapeutic Categories by Reason Code Category

Drug Use: Patient Behavior	Drug Choice	Drug Use Issues/Problems
AHFS Therapeutic Category (Frequency)	**AHFS Therapeutic Category (Frequency)**	**AHFS Therapeutic Category (Frequency)**
120804 Antiparkinsonian Agents (533)	564001 H2 Receptor Antagonists (989)	121200 Sympathomimetic (Adrenergic) Agents (465)
281604 Antidepressants (518)	240405 ACE Inhibitors (666)	280808 Opiate Agonists (214)
281608 Antipsychotics (497)	683604 Thyroid Agents (360)	081216 Penicillins (200)
281605 SSRIs (452)	280804 NSAIDs (321)	081212 Macrolides (190)
240403 Beta Blockers (385)	280808 Opiate Agonists (274)	680400 Adrenals (139)
402800 Diuretics (372)	999900 Unknown/missing (232)	281604 Antidepressants (124)
240405 ACE Inhibitors (362)	240600 Antilipemic Agents (189)	920000 Unclassified Therapeutic Agents (123)
240600 Antilipemic Agents (340)	281605 SSRIs (168)	280804 NSAIDs (100)
281292 Miscellaneous Anticonvulsants (339)	281604 Antidepressants (167)	281605 SSRIs (92)
999900 Unknown/missing (328)	082200 Quinolones (152)	081206 Cephalosporins (86)

Section 4: Ten Pharmacies Paid for the Most Claims

Table 28
Characteristics of Top Ten Pharmacy PC Claim Providers

Pharmacy	Number of PC Claims	Number of Years Submitting PC Claims	Type	Location	Mean Annual Medicaid Drug Claim Volume	Mean Annual Medicaid Recipient Volume	Annual PC Claim Rate
1	2,945	6	Independent	Rural	22,877	954	51.4
2	1,632	5	Independent	Rural	4,302	173	188.7
3	1,327	7	Independent	Rural	17,821	797	23.8
4	1,182	4	LTC Facility	Urban	59,460	1,028	28.7
5	1,000	2	LTC Facility	Urban	250,364	4,446	11.2
6	870	7	Independent	Rural	13,604	770	16.1
7	575	4	Independent	Urban	17,130	457	31.5
8	389	3	Health System/Clinic	Urban	11,858	2,198	5.9
9	359	7	Independent	Urban	38,189	1,333	3.8
10	341	6	Independent	Urban	13,743	373	15.2
	10,620						

Note: Pharmacy type determined via name recognition by the authors. Urban location defined as pharmacy location in a city with 50,000 or more population. Annual PC claim rate calculated as (mean annual number of PC claims/mean annual Medicaid recipient volume) * 100%. Mean annual Medicaid drug claim volume and Medicaid recipient volume calculated for 1997-2003.

Table 29
Number of PC Claims From Top Ten Pharmacy Providers by Year

Pharmacy		1997	1998	1999	2000	2001	2002	2003
1	# PC Claims	5	13	3	0	300	817	1,807
	# Drug Claims	11,624	18,893	19,971	24,369	24,686	26,039	34,559
	# Recipients	956	764	804	956	982	1,084	1,132
	PC Claim Rate	0.52	1.7	0.37	0	30.5	75.4	159.6
2	# PC Claims	0	0	125	158	374	479	496
	# Drug Claims	0	4	3,335	4,748	6,248	7,360	8,422
	# Recipients	0	1	167	238	264	272	268
	PC Claim Rate	-	0	74.9	66.4	141.7	176.1	297.0
3	# PC Claims	143	158	73	142	273	254	284
	# Drug Claims	13,192	14,966	15,937	17,925	19,406	21,542	21,781
	# Recipients	766	583	574	745	870	1,039	999
	PC Claim Rate	18.7	27.1	12.7	19.1	31.4	24.4	28.4
4	# PC Claims	0	0	0	448	224	254	256
	# Drug Claims	0	3,235	52,706	74,805	80,738	97,963	106,773
	# Recipients	0	557	1,090	1,180	1,267	1,519	1,583
	PC Claim Rate	-	0	0	38.0	17.7	16.7	16.2
5	# PC Claims	0	0	0	0	16	0	984
	# Drug Claims	0	0	1,117	23,0124	375,078	515,861	630,370
	# Recipients	0	0	207	5,133	6,869	8,943	9,973
	PC Claim Rate	-	-	0	0	0.23	0	9.9
6	# PC Claims	23	14	6	46	191	248	342
	# Drug Claims	12,213	12,104	11,372	12,763	13,820	15,995	16,960
	# Recipients	654	653	644	751	806	947	937
	PC Claim Rate	3.5	2.1	0.93	6.1	23.7	26.2	36.5
7	# PC Claims	0	0	0	18	18	18	521
	# Drug Claims	13,938	13,170	14,153	16,004	17,860	20,065	24,717
	# Recipients	584	425	415	438	423	427	484
	PC Claim Rate	0	0	0	4.1	4.3	4.2	107.6

8	# PC Claims	0	0	0	0	171	144	74
	# Drug Claims	0	0	385	17,742	21,768	22,303	20,809
	# Recipients	0	0	166	3,813	4,153	3,848	3,408
	PC Claim Rate	-	-	0	0	4.1	3.7	2.2
9	# PC Claims	95	91	42	20	37	56	21
	# Drug Claims	37,310	37,121	38,356	39,342	38,374	39,281	37,539
	# Recipients	1,548	1,510	1,442	1,423	1,172	1,177	1,056
	PC Claim Rate	6.1	6.0	2.9	1.4	3.2	4.8	2.0
10	# PC Claims	29	151	28	0	8	78	47
	# Drug Claims	14,986	14,417	13,110	13,151	13,531	12,399	14,609
	# Recipients	507	402	339	336	338	324	366
	PC Claim Rate	5.7	37.6	8.3	0	2.4	24.1	12.8

Note: PC claim rate calculated as (annual number of PC claims/annual Medicaid recipient volume) * 100.

Table 30

Percentage of PC Claims in Reason, Action, Result, and Time categories by Top Ten Pharmacies

	1	2	3	4	5	6	7	8	9	10	All Ten	All Pharm
REASON CODE												
Drug Use: Patient Behaviors	29.9	47.5	56.7	99.8	0	56.7	82.9	26.2	35.6	37.2	**46.3**	**46.5**
Drug Choice	5.1	25.5	30.4	0.1	100.0	32.1	12.2	70.2	47.4	9.4	**26.3**	**32.3**
Drug Use Issues/Problems	64.9	27.0	12.0	0	0	10.9	4.9	3.1	15.0	53.4	**27.2**	**20.5**
Other	0.1	0	0.9	0.1	0	0.3	0	0.5	2.0	0	**0.2**	**0.7**
ACTION CODE												
Patient Contacted	81.7	43.8	45.4	68.9	0	53.2	82.3	21.6	33.2	78.3	**56.0**	**50.6**
Other Consult	0	0	0	0.1	0	0.1	0	0	0.3	0	**>0.1**	**0.1**
MD Contacted	4.4	47.7	37.8	0	7.0	23.7	11.7	33.2	61.0	21.7	**20.5**	**28.7**
Pharmacist Alone	13.9	8.5	16.8	31.0	93.0	23.0	6.1	45.2	5.5	0	**23.5**	**20.6**
RESULT CODE												
Adjusted Fill	6.5	30.5	39.9	0.1	99.9	41.5	15.2	65.1	45.4	23.5	**29.8**	**36.3**
Not Filled	0.3	6.9	7.0	0	0.1	1.6	2.1	12.6	21.5	0	**3.5**	**5.2**
Compliance Aid	0.1	2.1	18.5	68.9	0	2.8	65.7	10.5	5.8	0	**14.7**	**15.2**
Patient Informed	93.1	59.9	32.4	31.0	0	51.2	17.0	11.8	23.4	76.5	**51.3**	**40.9**
Unadjusted Fill	0	0	0	0	0	1.0	0	0	1.7	0	**>0.1**	**0.6**
Other	0	0.6	2.2	0	0	1.9	0	0	2.2	0	**>0.1**	**1.8**
TIME CODE												
0-5 minutes	0	1.2	3.8	0	89.2	4.8	3.3	24.4	34.3	13.2	**12.1**	**17.6**
6-15 minutes	38.7	53.0	19.9	0	10.4	93.2	26.4	67.6	44.3	65.4	**37.5**	**38.7**
16-30 minutes	45.5	21.5	26.7	0	0.4	0.8	5.1	5.4	14.7	20.8	**21.0**	**18.8**
31-60 minutes	14.5	24.3	48.7	99.9	0	0.6	65.2	2.3	6.1	0.6	**28.9**	**23.9**
> 60 minutes	1.3	0	0.9	0.1	0	0.6	0	0.3	0.6	0.00	**0.5**	**1.0**

Note: All ten pharmacies consist of the top ten pharmacies. All pharmacies consist of every pharmacy that had a PC claim paid.

Appendix A: Pharmacy Participation Rate by Medicaid Prescription Drug Claim Volume

Table 1
Pharmacy Participation Rate by Medicaid Prescription Drug Claim Volume

Rank	\ Year	1997	1998	1999	2000	2001	2002	2003	Overall
High	**Number**	428	423	415	415	412	413	416	616
	Number Participating	94	67	43	40	89	58	65	230
	Participation Rate	0.22	0.16	0.10	0.10	0.22	0.14	0.16	0.37
Medium	**Number**	429	423	416	418	411	412	416	616
	Number Participating	52	45	27	22	65	44	30	127
	Participation Rate	0.12	0.11	0.06	0.05	0.16	0.11	0.07	0.21
Low	**Number**	429	423	415	416	412	413	416	616
	Number Participating	13	14	4	11	18	16	8	30
	Participation Rate	0.03	0.03	0.01	0.03	0.04	0.04	0.02	0.05

Note: High Medium and Low categories represent thirds of the distribution of pharmacies by Medicaid drug claim volume.

Appendix B : Distribution of PC Claims by Pharmacy Providers for Each Year

Table 1
Distribution of PC Claims by Pharmacy Providers: 1997

Number of Claims/Submitting Pharmacy	Number of Submitting Pharmacies	Percent of Submitting Pharmacies	Number Of PC Claims	Percent Of PC Claims	Rate of PC Claims*	Average Number of Recipients
1	45	29.4	45	3.1	0.02	314
2-5	50	32.7	156	10.8	0.04	553
6-10	26	17.0	195	13.6	0.05	699
11-20	17	11.1	250	17.4	0.18	471
21-50	10	6.5	286	19.9	0.20	689
51-100	3	2.0	241	16.7	0.52	810
>100	2	1.3	266	18.5	1.15	612
Total	153	100	1,439	100	0.11	513

Note: The largest number of claims/submitting pharmacy was 143.
* Rate was calculated from the following equation: (total number of PC claims / total number of drug claims)* 100%.

Table 2
Distribution of PC Claims by Pharmacy Providers: 1998

Number of Claims/Submitting Pharmacy	Number of Submitting Pharmacies	Percent of Submitting Pharmacies	Number Of PC Claims	Percent Of PC Claims	Rate of PC Claims*	Average Number of Recipients
1	26	21.5	26	1.8	0.02	244
2-5	45	37.9	135	9.3	0.05	300
6-10	19	15.7	138	9.5	0.07	594
11-20	15	12.4	228	15.7	0.10	481
21-50	10	8.3	316	21.8	0.23	739
51-100	4	3.3	300	20.7	0.52	582
>100	2	1.7	309	21.3	1.05	493
Total	121	100	1,452	100	0.13	405

Note: The largest number of claims/submitting pharmacy was 158.
* Rate was calculated from the following equation: (total number of PC claims / total number of drug claims)* 100%.

Table 3
Distribution of PC Claims by Pharmacy Providers: 1999

Number of Claims/Submitting Pharmacy	Number of Submitting Pharmacies	Percent of Submitting Pharmacies	Number Of PC Claims	Percent Of PC Claims	Rate of PC Claims*	Average Number of Recipients
1	16	21.9	16	2.0	0.02	304
2-5	23	31.5	78	9.7	0.04	379
6-10	15	20.5	115	14.3	0.15	329
11-20	7	9.6	98	12.2	0.14	369
21-50	10	13.7	301	37.3	0.30	388
51-100	1	1.4	73	9.1	0.46	574
>100	1	1.4	125	15.5	3.75	167
Total	73	100	806	100	0.14	353

Note: The largest number of claims/submitting pharmacy was 125.
* Rate was calculated from the following equation: (total number of PC claims / total number of drug claims)* 100%.

Table 4
Distribution of PC Claims by Pharmacy Providers: 2000

Number of Claims/Submitting Pharmacy	Number of Submitting Pharmacies	Percent of Submitting Pharmacies	Number Of PC Claims	Percent Of PC Claims	Rate of PC Claims*	Average Number of Recipients
1	20	27.4	20	1.5	0.02	420
2-5	26	35.6	83	6.3	0.04	484
6-10	10	13.7	74	5.7	0.11	557
11-20	8	11.0	136	10.4	0.17	453
21-50	5	6.9	155	11.8	0.48	299
51-100	1	1.4	93	7.1	0.48	719
>100	3	4.1	748	57.1	0.77	721
Total	73	100	1,309	100	0.21	474

Note: The largest number of claims/submitting pharmacy was 448.
* Rate was calculated from the following equation: (total number of PC claims / total number of drug claims)* 100%.

Table 5
Distribution of PC Claims by Pharmacy Providers: 2001

Number of Claims/Submitting Pharmacy	Number of Submitting Pharmacies	Percent of Submitting Pharmacies	Number Of PC Claims	Percent Of PC Claims	Rate of PC Claims*	Average Number of Recipients
1	50	29.4	50	1.5	0.02	402
2-5	46	27.1	137	4.2	0.04	510
6-10	25	14.7	197	6.1	0.09	594
11-20	17	10.0	251	7.8	0.05	732
21-50	20	11.8	681	21.1	0.34	430
51-100	6	3.5	386	11.9	0.23	1,132
>100	6	3.5	1,533	47.4	0.99	1,354
Total	170	100	3,235	100	0.17	555

Note: The largest number of claims/submitting pharmacy was 374.
* Rate was calculated from the following equation: (total number of PC claims / total number of drug claims)* 100%.

Table 6
Distribution of PC Claims by Pharmacy Providers: 2002

Number of Claims/Submitting Pharmacy	Number of Submitting Pharmacies	Percent of Submitting Pharmacies	Number Of PC Claims	Percent Of PC Claims	Rate of PC Claims*	Average Number of Recipients
1	35	30.2	35	1.0	0.02	298
2-5	28	24.1	87	2.4	0.03	706
6-10	16	13.8	128	3.5	0.14	369
11-20	8	6.9	115	3.1	0.24	255
21-50	14	12.1	481	13.2	0.36	429
51-100	8	6.9	509	13.9	0.23	938
>100	7	6.0	2,298	62.9	1.24	1,257
Total	116	100	3,653	100	0.31	521

Note: The largest number of claims/submitting pharmacy was 817.
* Rate was calculated from the following equation: (total number of PC claims / total number of drug claims)* 100%.

Table 7
Distribution of PC Claims by Pharmacy Providers: 2003

Number of Claims/Submitting Pharmacy	Number of Submitting Pharmacies	Percent of Submitting Pharmacies	Number Of PC Claims	Percent Of PC Claims	Rate of PC Claims*	Average Number of Recipients
1	24	23.8	24	0.4	0.01	693
2-5	20	19.8	66	1.0	0.05	378
6-10	12	11.9	99	1.5	0.07	872
11-20	17	16.8	256	3.9	0.13	805
21-50	12	11.9	374	5.8	0.18	820
51-100	5	5.0	324	5.0	0.50	1,437
>100	11	10.9	5,358	82.4	0.54	1,689
Total	101	100	6,501	100	0.32	831

Note: The largest number of claims/submitting pharmacy was 1807.
* Rate was calculated from the following equation: (total number of PC claims / total number of drug claims)* 100%.

Appendix C : Frequency of Reason, Action, Result and Time Categories Overall and By Year of Each Top Ten Pharmacy

Table 1

Frequency of reason, action, result, and time categories for Pharmacy #1

	1997	1998	1999	2000	2001	2002	2003	TOTAL	PERCENT
REASON CODE									
Drug Use: Patient Behaviors	1	9	0	0	93	166	612	881	29.92
Drug Choice	4	4	2	0	27	13	99	149	5.06
Drug Use Issues/Problems	0	0	0	0	179	638	1096	1913	64.96
Other	0	0	1	0	1	0	0	2	0.07
ACTION CODE									
Patient	1	6	0	0	250	782	1366	2405	81.66
Other Consult	0	0	0	0	0	0	0	0	0
MD	4	7	3	0	25	27	65	131	4.45
Pharmacist Alone	0	0	0	0	25	8	376	409	13.89
RESULT CODE									
Adjusted Fill	5	12	0	0	39	30	104	190	6.45
Not Filled	0	1	3	0	4	0	2	10	0.34
Compliance Aid	0	0	0	0	0	1	1	2	0.07
Patient	0	0	0	0	257	786	1700	2743	93.14
Unadjusted Fill	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0
TIME CODE									
0-5 minutes	5	4	2	0	130	291	708	1140	38.71
6-15 minutes	0	0	0	0	0	0	0	0	0
16-30 minutes	0	9	1	0	109	515	705	1339	45.47
31-60 minutes	0	0	0	0	24	11	393	428	14.53
> 60 minutes	0	0	0	0	37	0	1	38	1.29

Table 2

Frequency of reason, action, result, and time categories for Pharmacy #2

	1997	1998	1999	2000	2001	2002	2003	TOTAL	PERCENT
REASON CODE									
Drug Use: Patient Behaviors	0	0	61	81	199	204	231	776	47.55
Drug Choice	0	0	19	34	91	150	122	416	25.49
Drug Use Issues/Problems	0	0	45	43	84	125	143	440	26.96
Other	0	0	0	0	0	0	0	0	0
ACTION CODE									
Patient	0	0	84	102	144	205	179	714	43.75
Other Consult	0	0	0	0	0	0	0	0	0
MD	0	0	40	48	181	236	274	779	47.73
Pharmacist Alone	0	0	1	8	49	38	43	139	8.52
RESULT CODE									
Adjusted Fill	0	0	73	51	104	137	133	498	30.51
Not Filled	0	0	7	6	24	50	26	113	6.92
Compliance Aid	0	0	10	7	8	5	4	34	2.08
Patient	0	0	26	94	238	287	333	978	59.93
Unadjusted Fill	0	0	0	0	0	0	0	0	0
Other	0	0	9	0	0	0	0	9	0.55
TIME CODE									
0-5 minutes	0	0	54	105	158	270	278	865	53.0
6-15 minutes	0	0	0	12	2	3	2	19	1.16
16-30 minutes	0	0	63	34	94	109	52	352	21.57
31-60 minutes	0	0	8	7	120	97	164	396	24.26
> 60 minutes	0	0	0	0	0	0	0	0	0

Table 3
Frequency of reason, action, result, and time categories for Pharmacy #3

	1997	1998	1999	2000	2001	2002	2003	TOTAL	PERCENT
REASON CODE									
Drug Use: Patient Behaviors	65	76	40	67	139	161	204	752	56.67
Drug Choice	53	43	21	49	104	68	65	403	30.37
Drug Use Issues/Problems	23	39	11	24	24	24	14	159	11.98
Other	2	0	1	2	6	1	1	13	0.98
ACTION CODE									
Patient	63	75	26	50	99	125	165	603	45.44
Other Consult	0	0	0	0	0	0	0	0	0
MD	77	78	35	65	89	104	53	501	37.75
Pharmacist Alone	3	5	12	27	85	25	66	223	16.80
RESULT CODE									
Adjusted Fill	86	77	32	60	123	76	76	530	39.94
Not Filled	29	10	4	12	19	13	6	93	7.01
Compliance Aid	6	18	14	14	27	64	102	245	18.46
Patient	16	35	18	56	104	101	100	430	32.40
Unadjusted Fill	0	0	0	0	0	0	0	0	0
Other	6	18	5	0	0	0	0	29	2.19
TIME CODE									
0-5 minutes	55	51	13	41	42	26	36	264	19.89
6-15 minutes	20	19	2	5	4	0	0	50	3.77
16-30 minutes	40	22	12	53	80	81	66	354	26.68
31-60 minutes	23	66	45	42	144	146	181	647	48.76
> 60 minutes	5	0	1	1	3	1	1	12	0.9

Table 4

Frequency of reason, action, result, and time categories for Pharmacy #4

	1997	1998	1999	2000	2001	2002	2003	TOTAL	PERCENT
REASON CODE									
Drug Use: Patient Behaviors	0	0	0	447	223	254	256	1180	99.83
Drug Choice	0	0	0	1	0	0	0	1	0.08
Drug Use Issues/Problems	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	1	0	0	1	0.08
ACTION CODE									
Patient	0	0	0	82	223	254	256	815	68.95
Other Consult	0	0	0	0	1	0	0	1	0.08
MD	0	0	0	0	0	0	0	0	0
Pharmacist Alone	0	0	0	366	0	0	0	366	30.96
RESULT CODE									
Adjusted Fill	0	0	0	1	0	0	0	1	0.08
Not Filled	0	0	0	0	0	0	0	0	0
Compliance Aid	0	0	0	82	223	254	256	815	68.95
Patient	0	0	0	365	1	0	0	366	30.96
Unadjusted Fill	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0
TIME CODE									
0-5 minutes	0	0	0	0	0	0	0	0	0
6-15 minutes	0	0	0	0	0	0	0	0	0
16-30 minutes	0	0	0	0	0	0	0	0	0
31-60 minutes	0	0	0	448	223	254	256	1181	99.92
> 60 minutes	0	0	0	0	1	0	0	1	0.08

Table 5

Frequency of reason, action, result, and time categories for Pharmacy #5

	1997	1998	1999	2000	2001	2002	2003	TOTAL	PERCENT
REASON CODE									
Drug Use: Patient Behaviors	0	0	0	0	0	0	0	0	0
Drug Choice	0	0	0	0	16	0	984	1000	100.00
Drug Use Issues/Problems	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0
ACTION CODE									
Patient	0	0	0	0	0	0	0	0	0
Other Consult	0	0	0	0	0	0	0	0	0
MD	0	0	0	0	13	0	57	70	7.00
Pharmacist Alone	0	0	0	0	3	0	927	930	93.00
RESULT CODE									
Adjusted Fill	0	0	0	0	16	0	983	999	99.90
Not Filled	0	0	0	0	0	0	1	1	0.10
Compliance Aid	0	0	0	0	0	0	0	0	0
Patient	0	0	0	0	0	0	0	0	0
Unadjusted Fill	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0
TIME CODE									
0-5 minutes	0	0	0	0	8	0	96	104	10.4
6-15 minutes	0	0	0	0	8	0	884	892	89.2
16-30 minutes	0	0	0	0	0	0	4	4	0.4
31-60 minutes	0	0	0	0	0	0	0	0	0
> 60 minutes	0	0	0	0	0	0	0	0	0

Table 6

Frequency of reason, action, result, and time categories for Pharmacy #6

	1997	1998	1999	2000	2001	2002	2003	TOTAL	PERCENT
REASON CODE									
Drug Use: Patient Behaviors	3	4	0	28	131	136	190	492	56.66
Drug Choice	18	8	4	11	33	86	119	279	32.07
Drug Use Issues/Problems	1	2	1	7	26	26	32	95	10.92
Other	1	0	1	0	1	0	1	4	0.46
ACTION CODE									
Patient	2	5	1	30	118	131	176	463	53.22
Other Consult	0	0	0	0	1	0	0	1	0.11
MD	18	7	5	9	53	48	66	206	23.68
Pharmacist Alone	3	2	0	7	19	69	100	200	22.99
RESULT CODE									
Adjusted Fill	6	4	0	14	71	111	155	361	41.49
Not Filled	2	1	0	0	1	3	7	14	1.61
Compliance Aid	0	0	0	4	3	5	12	24	2.76
Patient	1	2	1	28	116	129	168	445	51.15
Unadjusted Fill	3	1	5	0	0	0	0	9	1.03
Other	11	6	0	0	0	0	0	17	1.95
TIME CODE									
0-5 minutes	12	4	5	46	185	236	323	811	93.22
6-15 minutes	11	8	0	0	1	8	14	42	4.83
16-30 minutes	0	2	0	0	2	2	1	7	0.8
31-60 minutes	0	0	1	0	2	0	2	5	0.57
> 60 minutes	0	0	0	0	1	2	2	5	0.57

Table 7

Frequency of reason, action, result, and time categories for Pharmacy #7

	1997	1998	1999	2000	2001	2002	2003	TOTAL	PERCENT
REASON CODE									
Drug Use: Patient Behaviors	0	0	0	3	3	3	468	477	82.96
Drug Choice	0	0	0	15	14	12	29	70	12.17
Drug Use Issues/Problems	0	0	0	0	1	3	24	28	4.87
Other	0	0	0	0	0	0	0	0	0
ACTION CODE									
Patient	0	0	0	2	1	3	467	473	82.26
Other Consult	0	0	0	0	0	0	0	0	0
MD	0	0	0	2	10	12	43	67	11.65
Pharmacist Alone	0	0	0	14	7	3	11	35	6.09
RESULT CODE									
Adjusted Fill	0	0	0	15	17	10	45	87	15.13
Not Filled	0	0	0	1	0	4	7	12	2.09
Compliance Aid	0	0	0	0	0	2	376	378	65.74
Patient	0	0	0	2	1	2	93	98	17.04
Unadjusted Fill	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0
TIME CODE									
0-5 minutes	0	0	0	17	13	9	113	152	26.43
6-15 minutes	0	0	0	1	2	3	13	19	3.3
16-30 minutes	0	0	0	0	3	4	22	29	5.04
31-60 minutes	0	0	0	0	0	2	373	375	65.22
> 60 minutes	0	0	0	0	0	0	0	0	0

Table 8

Frequency of reason, action, result, and time categories for Pharmacy #8

	1997	1998	1999	2000	2001	2002	2003	TOTAL	PERCENT
REASON CODE									
Drug Use: Patient Behaviors	0	0	0	0	30	41	31	102	26.22
Drug Choice	0	0	0	0	134	101	38	273	70.18
Drug Use Issues/Problems	0	0	0	0	6	1	5	12	3.08
Other	0	0	0	0	1	1	0	2	0.51
ACTION CODE									
Patient	0	0	0	0	23	33	28	84	21.59
Other Consult	0	0	0	0	0	0	0	0	0
MD	0	0	0	0	56	34	39	129	33.16
Pharmacist Alone	0	0	0	0	92	77	7	176	45.24
RESULT CODE									
Adjusted Fill	0	0	0	0	132	89	32	253	65.04
Not Filled	0	0	0	0	16	20	13	49	12.60
Compliance Aid	0	0	0	0	8	8	25	41	10.54
Patient	0	0	0	0	15	27	4	46	11.83
Unadjusted Fill	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0
TIME CODE									
0-5 minutes	0	0	0	0	117	87	59	263	67.61
6-15 minutes	0	0	0	0	40	53	2	95	24.42
16-30 minutes	0	0	0	0	6	4	11	21	5.4
31-60 minutes	0	0	0	0	7	0	2	9	2.31
> 60 minutes	0	0	0	0	1	0	0	1	0.26

Table 9

Frequency of reason, action, result, and time categories for Pharmacy #9

	1997	1998	1999	2000	2001	2002	2003	TOTAL	PERCENT
REASON CODE									
Drug Use: Patient Behaviors	22	27	14	3	17	35	10	128	35.65
Drug Choice	47	49	22	14	18	12	8	170	47.35
Drug Use Issues/Problems	19	12	6	3	2	9	3	54	15.04
Other	4	3	0	0	0	0	0	7	1.95
ACTION CODE									
Patient	20	19	11	3	16	39	11	119	33.15
Other Consult	0	1	0	0	0	0	0	1	0.28
MD	70	70	29	17	12	11	10	219	61.00
Pharmacist Alone	2	1	2	0	9	6	0	20	5.57
RESULT CODE									
Adjusted Fill	29	52	22	17	18	17	8	163	45.40
Not Filled	46	15	11	0	3	0	2	77	21.45
Compliance Aid	0	3	1	1	5	7	4	21	5.85
Patient	13	12	7	2	11	32	7	84	23.40
Unadjusted Fill	2	4	0	0	0	0	0	6	1.67
Other	2	5	1	0	0	0	0	8	2.23
TIME CODE									
0-5 minutes	37	41	21	7	16	31	6	159	44.29
6-15 minutes	36	38	17	11	5	8	8	123	34.26
16-30 minutes	16	6	3	2	9	11	6	53	14.76
31-60 minutes	2	6	1	0	6	6	1	22	6.13
> 60 minutes	1	0	0	0	1	0	0	2	0.56

Table 10

Frequency of reason, action, result, and time categories for Pharmacy #10

	1997	1998	1999	2000	2001	2002	2003	TOTAL	PERCENT
REASON CODE									
Drug Use: Patient Behaviors	5	8	9	0	5	53	47	127	37.24
Drug Choice	4	0	0	0	3	25	0	32	9.38
Drug Use Issues/Problems	20	143	19	0	0	0	0	182	53.37
Other	0	0	0	0	0	0	0	0	0
ACTION CODE									
Patient	22	144	21	0	0	38	42	267	78.30
Other Consult	0	0	0	0	0	0	0	0	0
MD	7	7	7	0	8	40	5	74	21.70
Pharmacist Alone	0	0	0	0	0	0	0	0	0
RESULT CODE									
Adjusted Fill	10	8	9	0	8	40	5	80	23.46
Not Filled	0	0	0	0	0	0	0	0	0
Compliance Aid	0	0	0	0	0	0	0	0	0
Patient	19	143	19	0	0	38	42	261	76.54
Unadjusted Fill	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0
TIME CODE									
0-5 minutes	21	81	10	0	1	63	47	223	65.4
6-15 minutes	2	13	8	0	7	15	0	45	13.2
16-30 minutes	6	55	10	0	0	0	0	71	20.82
31-60 minutes	0	2	0	0	0	0	0	2	0.59
> 60 minutes	0	0	0	0	0	0	0	0	0.00