

The California Commission on Health and Safety and Workers' Compensation



Impact of Physician-Dispensing of Repackaged Drugs on California Workers' Compensation, Employers Cost, and Workers' Access to Quality Care

A Study for the Commission on Health and Safety and Workers' Compensation

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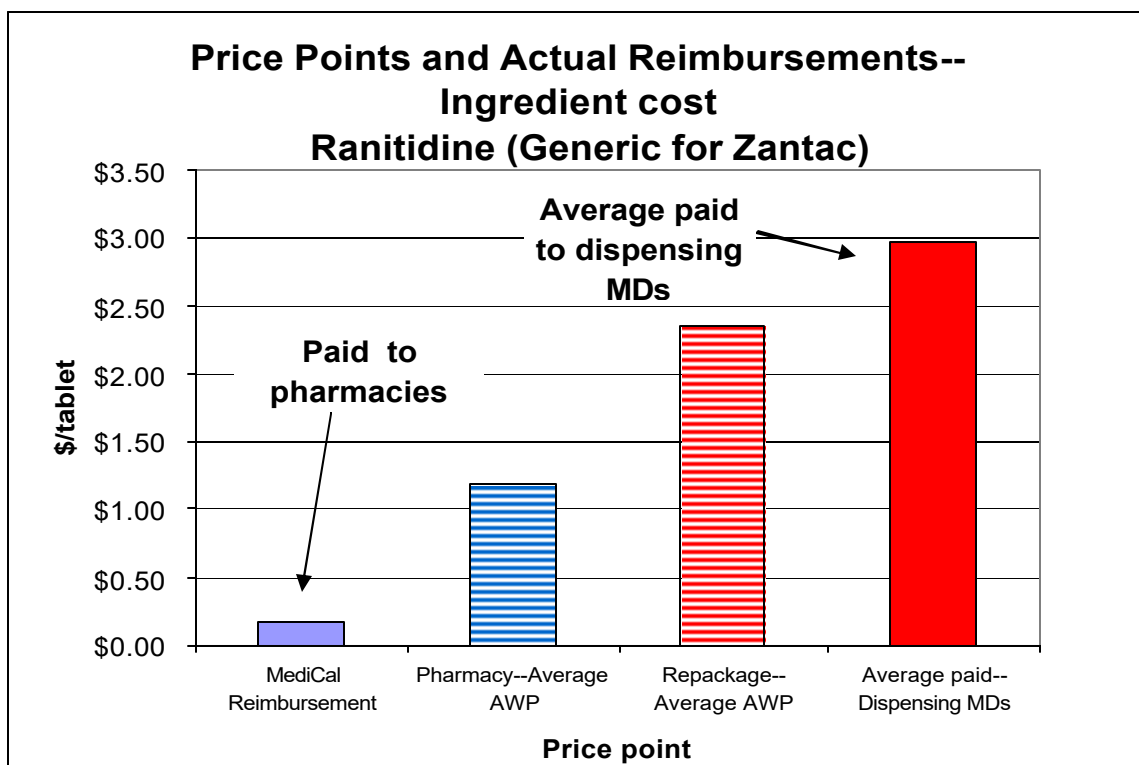
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Executive Summary

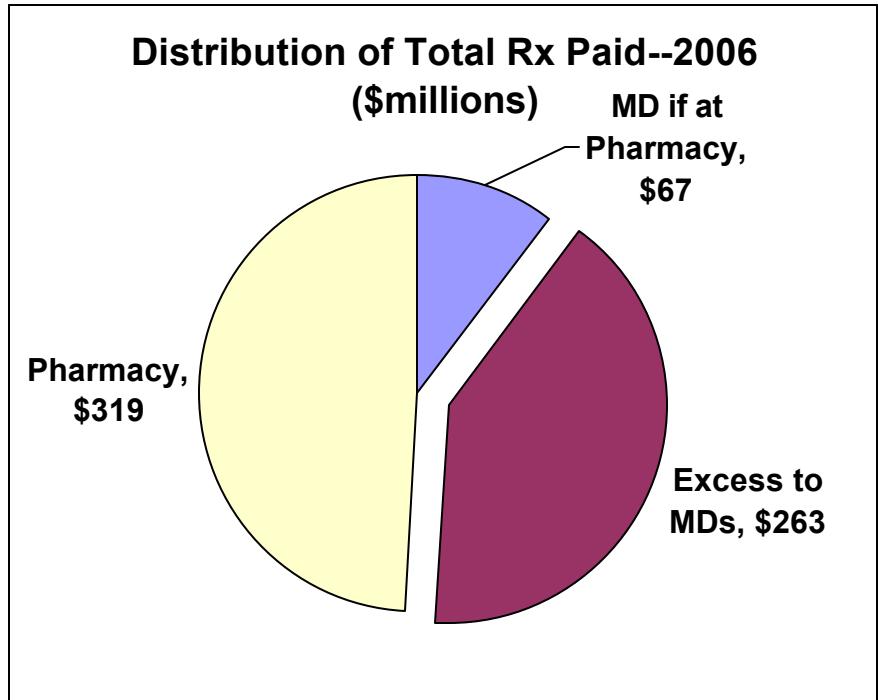
Physician-dispensed prescription drugs comprise a significant portion of all pharmaceutical prescriptions dispensed in California's workers' compensation system. Because of limits on the reach of statute and regulations adopted under Senate Bill (SB) 228, physician-dispensed pharmaceuticals are also much more expensive than the same drugs dispensed through a pharmacy. This report documents the extra costs placed on the workers' compensation system by physician-dispensed drugs. The report also reviews research on both the positive and negative impacts of physician dispensing, including the main arguments raised by proponents at Commission on Health and Safety and Workers' Compensation (CHSWC) meetings and at Division of Workers' Compensation (DWC) regulatory hearings.

Main findings on the direct cost of physician-dispensed drugs:

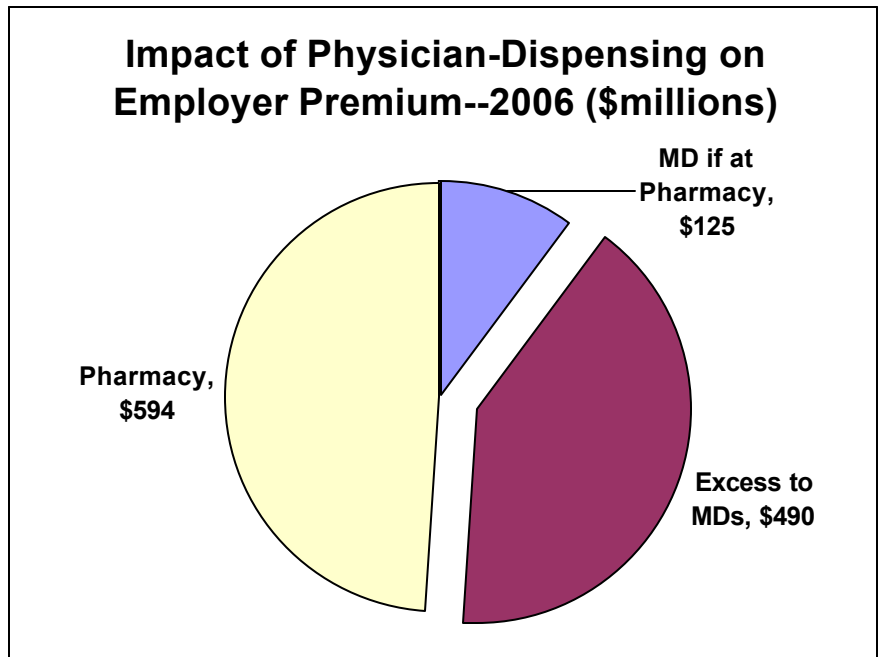
- Physician dispensing is much more common than most observers expected. 30.3% of prescriptions dispensed in the California workers' compensation system are dispensed by physicians directly from their offices.
- Approximately half (50.8%) of the total cost of pharmaceuticals in the workers' compensation system is paid to physicians for prescriptions dispensed from their offices.
- Because of the structure of the Official Medical Fee Schedule, physician-dispensed pharmaceuticals are much more costly than the same drugs dispensed by a pharmacy. On average, physician-dispensed drugs cost 490% of what is paid to pharmacies. In some cases, including the most commonly prescribed drug dispensed by physicians, the mark-up exceeds 1000%.
- The most common physician-dispensed drug, Ranitidine (generic Zantac) also has one of the highest mark-ups when physician dispensed. Physicians were reimbursed, on average for the ingredient cost at over 1700% (\$2.97/pill) what pharmacies were paid (\$0.18).



- We estimate that for calendar-year 2006, insurers and self-insured employers will pay \$649 million for prescription drugs. Of this paid amount, \$263 million will be paid to dispensing physicians in excess of what would have been paid for the same drugs if dispensed by a pharmacy.



- We estimate that insured employers will face premiums for the 2006 policy year which are \$490 million dollars higher than if all drugs were dispensed through pharmacies. This represents 2.2% of premium for the policy year.



Other findings on costs and benefits:

- The research literature on the subject of physician-dispensed drugs generally argues that physician dispensing leads to increased, possibly inappropriate, use of prescription drugs. The studies have usually been conducted outside the U.S., and the results cannot necessarily be generalized to the California workers' compensation system. However, research on physician practices with similar incentives, such as self-referral for lab tests or imaging, has consistently found that incentives inherent in self-referral lead to over-utilization.
- The data in this study were not designed to determine whether physician dispensing led to increased utilization or changes in the types of drugs prescribed. However, the study does find striking differences in the types of drugs dispensed by physicians and pharmacies. This research could be extended to allow a fuller analysis of how financial incentives may change prescribing practices.
- Research finds only weak evidence for better compliance with drug regimes when the physician dispenses directly to the patient. There is virtually no research demonstrating better health outcomes or more rapid recovery when physicians dispense.
- It is important to extend the research in this study to examine whether extensive use of physician dispensing does affect health outcomes, and if so, whether the effect is positive or negative.

Report

I. Introduction

In 2000, the Commission on Health and Safety and Workers' Compensation (CHSWC) issued a report (Neuhauser, et. al., 2000) identifying potential savings in the area of prescription drugs. The Official Medical Fee Schedule (OMFS) in effect at the time of that study reimbursed dispensers of prescription drugs at a premium substantially above what was paid by MediCal (Medicaid), group-health providers, and many other workers' compensation jurisdictions.

In response, the Legislature enacted Senate Bill (SB) 228 (Alarcón) linking the pharmaceutical portion of the OMFS to the MediCal reimbursement formula. MediCal reimbursement levels are carefully monitored by the federal government, the largest single payor of medical treatment in the U.S. Consequently, Medicaid schedules determine the accepted level of reimbursement for the largest single payor.¹

The MediCal schedule represented a substantial reduction from the pre-SB 228 schedule. Estimated savings were substantial. However, much of the anticipated savings have not been realized by employers because a substantial, and until now unidentified, portion of pharmaceutical costs were represented by physician-dispensed drugs which remained largely unaffected by the reforms.

The interpretation of the statute by the Division of Workers' Compensation (DWC) left considerable latitude for physician-dispensed drugs to be paid (at least as an upper limit) under the pre-SB 228 schedule. Previous research (Neuhauser, et al., 2000) had shown the pre-SB 228 schedule was overly generous. While the earlier schedule represents the maximum reasonable reimbursement rate, in practice, there has been little information on how employers/insurers were actually reimbursing dispensing physicians. In addition, there has been virtually no case law at the Workers' Compensation Appeals Board (WCAB) about what represents appropriate reimbursement for physician-dispensed prescriptions. As we will see below, some claims administrators have acted, in the absence of DWC regulatory direction, to pay "reasonable fees" that are less than the maximum reasonable fees of the pre-2004 fee schedule. Such reimbursements have been met with no apparent litigation in the lien arena.

This report examines how a major exception to linking of MediCal fees to workers' compensation fees, the dispensing of repackaged drugs directly by physicians, ~~limits~~ reduces the savings under SB 228. This loophole, in regulation by the Division of Workers' Compensation (DWC), continues to result in a significant fraction of prescriptions being paid at rates significantly higher, often several times higher, than prescriptions dispensed through pharmacies.²

Opportunities, both legislative and regulatory, have arisen to address this issue. That the issue had not been addressed more quickly resulted, in part, from a lack of information on the extent to which repackaged drugs, dispensed by doctors, are driving the pharmaceutical component of total workers' compensation medical costs. This void in information includes the types of drugs dispensed, the difference in price between drugs dispensed by physicians and those dispensed by pharmacies, and, finally, the total additional cost to employers and workers of the current pricing structure (Wynn,

¹ In 2004, federal Medicaid programs paid \$38 billion of the \$188 billion paid for retail prescription drugs.

² The Division of Workers' Compensation has recently issued a notice of public hearing on proposed changes to regulations that address fees for drugs dispensed by physicians. These proposed regulations are included as Appendix 5. The authors have not yet had an opportunity to review the impact of the proposed regulations.

2005). Data on these issues are critical for crafting an appropriate legislative and/or regulatory solution that protects workers' access to care while controlling employers' costs.

A number of stakeholders, particularly physicians, occupational health clinics, and the suppliers of repackaged drugs have made claims for the superiority of physician dispensing over pharmacy dispensing. While high-quality research supporting these claims is virtually non-existent, these concerns should be weighed. We address the issues raised by proponents and opponents in Section 5 of this report. In Section 5 we also review the available literature on each argument and data from this study where relevant.

2.0 Description of Physician Dispensing

Pharmaceuticals prescribed and dispensed by physicians are often referred to as “repackaged” drugs because they are purchased by relabelers from manufacturers in large quantities (e.g., 1,000-10,000 tablets) relabeled, and repackaged into single prescriptions sizes (e.g., 15, 30, 60 tablets) appropriate for dispensing directly to patients.

For every combination of drug, labeler, and package size, an 11-digit National Drug Code (NDC) number is assigned. In addition, repackagers assign their own “average wholesale price” or AWP, a benchmark price frequently used by payors for reimbursement. The new AWP does not necessarily bear any resemblance to the original manufacturer's AWP.

California's professional code requires that physicians individually buy and maintain the drugs they dispense. (See Appendix 3 for the wording of the code.) Physician dispensing received a major boost in California with the introduction of computerized point-of-sale (POS) systems that are leased to physicians by repackagers and that automate the process of buying, dispensing, billing and maintaining inventory control for drugs dispensed from physician offices. POS systems allow even multi-physician groups to appropriately segregate repackaged drug inventories by physician and stay within the requirements of the codes.³

Some classes of drugs, while available from repackagers, are rarely or never dispensed by physicians because of additional controls imposed on these drugs by the Drug Enforcement Administration (DEA). DEA Class 2 drugs, those considered to have the most potential for abuse (e.g., morphine, amphetamines), are infrequently dispensed by physicians. In the data sample for this study, 99.5% of DEA Class 2 drugs were dispensed through pharmacies.

3.0 Description of pharmaceutical pricing

Pharmaceutical pricing is complex and poorly understood even by many regulatory agencies. Often this is because the terminology is arcane and sometimes misleading. Below is a brief explanation key drug pricing benchmarks. More detail is available in a prior CHSWC report.⁴

3.1 Average Wholesale Price (AWP)

AWP is probably the most widely quoted pricing benchmark, but the least meaningful. Every NDC number has an associated AWP. However, unlike what the name implies, the price has no relation to a wholesale price, average or otherwise. It is simply a price point established by the manufacturer,

³ Physician dispensing was challenged by the retail pharmacy industry, but a California court case, 99 Cal. App. 4th 247, *Park Medical Pharmacy v. San Diego Orthopedic Associates Medical Group, Inc.*, upheld the legality of physicians dispensing from their offices without a pharmacy license. See Appendix 4.

⁴ Additional detail is available in the prior report for CHSWC, at <http://www.dir.ca.gov/CHSWC/Pharmacy/pharmacover.html>

wholesaler, or repackager. The AWP is often analogized to the “sticker price” on a new automobile because it is not a price that is actually paid by wholesale purchasers. However, this is a poor analogy in that the auto sticker price bears at least some relationship to the actual price. The AWP, on the other hand, is typically much higher than the actual amounts that are paid by pharmacies and other wholesale drug purchasers. Add a footnote: A 2002 study conducted by the Office of the Inspector General for the Department of Health and Human Services found a wide range of variation in the relationship between the AWP and estimated acquisition cost (EAC) that depended on the category of drug. Pharmacies purchased single source brand name drugs at an average cost of 82.8 percent of AWP compared to multiple source drugs with federal upper limits at 27.9% of AWP (Department of Health and Human Services, 2002).

Single-source, brand-priced drugs are newer pharmaceuticals, still under patent protection, and available from only one source (or occasionally more than one source under licensing arrangements). An example is Ambien, a non-narcotic, sleep aid, frequently prescribed in workers’ compensation. Other examples include the group of drugs know as Cox-II inhibitors, e.g., VIOXX, Celebrex, and Bextra. Cox-II inhibitors were prominent during the early period of the data for this study but were subsequently removed from the market because of severe side-effects (VIOXX), heavily restricted (Celebrex), or still generally available (Bextra). Single-source, brand-priced drugs are typically reimbursed by insurers (group health, Medicare/Medicaid, workers’ compensation) at a discount to the AWP. Currently, MediCal (California’s Medicaid program) discounts single-source, brand-priced drugs at 83% of AWP. In addition, MediCal negotiates significant rebates from the drug manufacturer for inclusion on the MediCal formulary. These rebates vary by drug, but overall average about 20-25% of MediCal total drug costs.⁵

No relationship exists between the AWP for single-source, brand-priced drugs and the AWP for multiple-source, generic drugs. Multiple-source, generic drugs represent, by far, the majority of dispensed drugs. However, because they are substantially less expensive, they represent a smaller portion of total expenditures. Typical of multiple-source, generic drugs are Ranitidine (generic for Zantac), Acetaminophen/Hydrocodone (Vicodin), and Naproxen (Naprosyn or Aleve [over-the-counter]). Each of these drugs is widely available in generic form and, as discussed below, the AWP is almost never related to the actual wholesale price or actual reimbursement rate.

3.2 Federal Upper Limit (FUL)

The Federal Upper Limit (FUL) is used for multiple-source, generic drugs with multiple manufacturing sources. Generally, any generic equivalent for a brand-priced drug for which the patent has expired and for which there are multiple manufacturing sources has a FUL price that applies to Federal Medicaid programs. There is sometimes a small window, maybe 6 months, between the expiration of the patent protection for a brand-priced drug and the establishment of a sufficient number of alternative manufacturing sources, during which a brand-priced drug with generic equivalents will still be priced relative to AWP. After the required number of manufacturers has entered the market, FUL pricing is definitive. FUL pricing establishes reimbursement at 150% of the lowest-cost generic equivalent available on the market, or, 150% of the AWP of the lowest-cost alternative available on the market anywhere in the U.S. The FUL often results in a Medicaid pricing limit that is a fraction of the AWP for a particular manufacturer. How this price point relates to the average AWP for generic equivalents is discussed below.

⁵ Figures on total drug expenditures and total rebates were available on the California Department of Health Services (CDHS) website, but recent changes have left these data inaccessible. Challenges have been made that California underestimated potential rebates and has failed to collect all rebates to which the MediCal program was entitled.

Within MediCal, the Federal Upper Limit (FUL) is determinant of pricing for the majority of multiple-source, generic drugs.

3.3 Maximum Allowable Ingredient Cost (MAIC)

Maximum Allowable Ingredient Cost (MAIC) is an alternative pricing scheme, always lower than or equal to FUL. MAIC pricing is established independently by individual states for some drugs that within the state may be generally available at a price lower than the FUL. Often these lower prices are negotiated directly with manufacturers, possibly in lieu of or in addition to rebates to the state from the manufacturer.

3.4 California MediCal Pricing

SB 228 made the California MediCal program the basis for pricing pharmaceuticals in the state's workers' compensation system. The most common price for the California MediCal program is the FUL price, except where a separate MAIC price has been established in the absence of FUL or because the MAIC is a discount even to the FUL. MediCal also publishes a "no substitution" price which applies if the physician specifies that a specific drug be dispensed. The no-substitution price is currently AWP - 17%. For drugs without a FUL or MAIC price, typically brand-priced drugs without generic substitutes or for which fewer than three generic substitute prices are available, AWP - 17% is also the controlling price. In addition, the MediCal payment may not exceed the dispenser's (e.g. pharmacy's) customary retail price.

3.5 Pricing for Repackaged Drugs

MediCal excludes reimbursement for repackaged drugs. There is no price listed for these drugs or their National Drug Code (NDC) in the MediCal pharmaceutical fee schedule. In the absence of regulatory direction from the DWC, this has been interpreted as allowing reimbursement for these drugs to be controlled by the pre-SB 228 Official Medical Fee Schedule (OMFS) which set "maximum reasonable" reimbursement at 1.4*AWP for generic drugs and 1.1*AWP for brand-priced drugs (plus professional fee). Actual reimbursements made by some payors attempting to pay reasonable fees are less than the maximum amounts allowed pre-SB 228, but more than the amounts allowed for pharmacies.⁶

Example of various prices---Ranitidine (generic for Zantac)

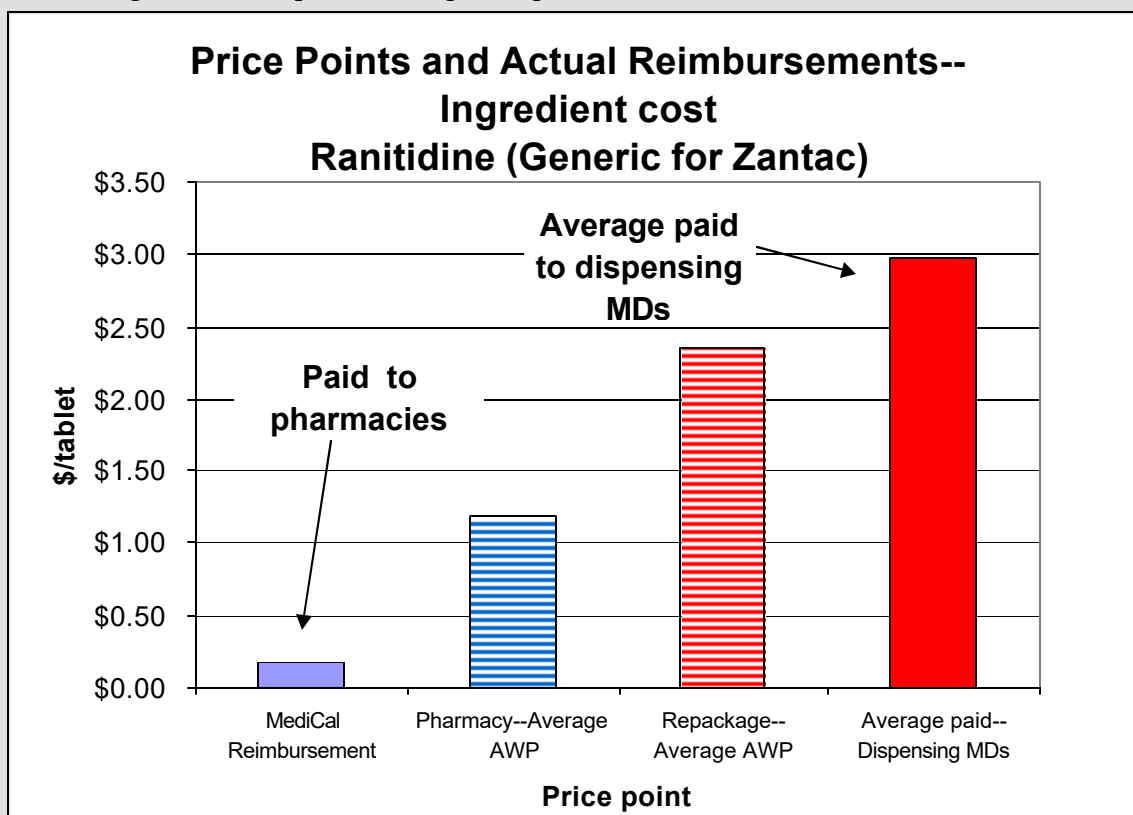
An example of how these various pricing approaches relate and how they can affect the price faced in workers' compensation by employers/insurers for any single drug may more clearly illustrate this issue. Ranitidine is the generic name for the drug Zantac that treats gastro-intestinal problems. The chart below indicates that:

- MediCal set reimbursement for Ranitidine 150 mg at \$0.18 per tablet.⁷ This price was also the FUL price. This was what pharmacies were paid for each unit of the ingredient portion of reimbursement for a Ranitidine prescription (separate from the professional fee of \$7.25/prescription).

⁶ While different payors appear to take different approaches to reimbursement of physician-dispensed drugs and a significant portion of reimbursements are at a reduction to the prior OMFS maximum reasonable fee, a quick survey of WCAB judges did not indicate that there was any significant lien activity or other legal challenges to reimbursement at less than the prior OMFS "maximum reasonable fee."

⁷ MediCal price as of 7/05.

- The average AWP for Ranitidine dispensed by pharmacies was \$1.18 per tablet or about 6.5 times the actual reimbursement based on the FUL (\$0.18 per tablet).⁸ That is, pharmacies were paid, on average, about AWP * .15.
- Physician-dispensed Ranitidine had, on average, much higher AWP. The average AWP reported by drug repackagers was \$2.35 per tablet, or about twice the AWP for pharmacy-dispensed Ranitidine.
- Dispensing physicians were actually reimbursed, on average, \$2.97 per tablet. This was on average about 125% of average AWP and 1,750% of what pharmacies were reimbursed for the same ingredient component of a prescription.



There are several important points about this example. First, AWP for generic drugs often bear little resemblance to the actual acquisition cost of pharmacies. In the case of Ranitidine, pharmacies were willing to dispense and, presumably profit, receiving an average reimbursement of 15% of the “reported” average “wholesale” price. Second, FUL and MAIC, when available, are virtually always the controlling prices. If pharmacies had been reimbursed at AWP – 17%, the ingredient cost would have been 540% higher. Third, AWP for repackaged drugs are often (but not always) set even higher than the inflated AWP reported on pharmacy-dispensed drugs. Finally, because FUL and MAIC prices do not apply to repackaged drugs, the actual paid amounts, based on AWP, can be many times higher than if the same drugs were dispensed by a pharmacy where FUL or MAIC control.

4.0 Impact of Physician Dispensing on California Workers’ Compensation Cost

Ranitidine is a particularly striking example of the impact of physician dispensing on employer cost. Estimating the impact of physician-dispensing across all drugs and total employer payments is more complex. Differences between physician-dispensing and pharmacy-dispensing costs depend upon a

⁸ Average AWP as of 7/25/05 weighted to reflect the distribution of Ranitidine from different manufacturers as dispensed through pharmacies.

number of factors. We discuss below those factors and their impact. The following tables give examples that highlight the various issues.

Examples: Average Paid Amounts (Physician-Dispensed)						
Name	Units per script	Generic		Brand		Generic (Percent of scripts)
		Dispensing fee/unit	Ingredient paid/unit	Dispensing fee/unit	Ingredient paid/unit	
Ranitidine/Zantac 150mg	80.8	\$0.12	\$2.97	\$0.13	\$3.07	99.5%
Naproxen/Naprosyn 500mg	52.7	\$0.15	\$1.51	\$0.13	\$1.69	99.0%
Celebrex 200mg	26.1	n/a	n/a	\$0.15	\$3.93	0.0%
Ultram/Tramadol 50mg	80.3	\$0.11	\$0.93	\$0.10	\$0.90	83%
Vicodin 5/500	42.7	\$0.20	\$0.69	n/a	n/a	100%
Lidoderm 5% patch	n/a	n/a	n/a	n/a	n/a	n/a

Examples: Paid Amounts (Pharmacy-Dispensed)						
Name	Units per script	Generic		Brand		Generic (Percent of scripts)
		Dispensing fee/unit	Ingredient paid/unit	Dispensing fee/unit	Ingredient paid/unit	
Ranitidine/Zantac 150mg	68.1	\$0.11	\$0.11	\$0.17	\$2.19	99.0%
Naproxen/Naprosyn 500mg	47.0	\$0.18	\$0.15	\$0.20	\$1.57	99.0%
Celebrex 200mg	47.5	n/a	n/a	\$0.15	\$3.27	0.0%
Ultram/Tramadol 50mg	71.8	\$0.09	\$0.31	\$0.16	\$1.05	78.0%
Vicodin 5/500	46.3	\$0.16	\$0.08	\$0.22	\$0.67	97.0%
Lidoderm 5% patch		n/a	n/a	\$0.14	\$4.96	0.0%

4.1 Professional fees

Payment for prescription drug dispensing is composed of two parts: (1) the per unit ingredient cost (discussed above); and (2) the professional or dispensing fee. The dispensing fee is a flat rate per prescription dispensed. The dispensing fee can be an important component of a prescription's cost, especially for generic drugs dispensed by pharmacies.

Dispensing fees do not vary much in absolute dollars. MediCal is at the upper end with a dispensing fee of \$7.50/prescription. The prior OMFS had dispensing fees of \$7.25 for generics and \$4.00 for brand-priced drugs. Prior research by the authors found \$2.00 to \$2.25 typical of group health and pharmacy benefit network dispensing fees. The cost of dispensing fees per unit of drug is then largely dependent on the average size of prescriptions. In addition, the average number of units dispensed does not vary substantially when dispensed by a physician or by a pharmacy. While individual drugs show variation in the units dispensed per script between pharmacy and physician dispensing, some higher and some lower, the average units per script across the top 20 drugs (by dollars for repack) is 52.8 units for physician dispensed and 54.0 units for pharmacy dispensed.

An additional point to note about dispensing fees is that they are a major component of pharmacy reimbursement for generic drugs. In the examples above, they range from about 1/3rd of the reimbursement for generic Vicodin to 3/4 of the reimbursement for Tramadol. For brand-priced drugs dispensed by pharmacies, the dispensing fee is only a small fraction of the total paid amount. Because of the higher ingredient cost of physician-dispensed generics, the professional fee is only a small fraction of reimbursements for repackaged drugs.

4.2 Ingredient cost

Ingredient cost was discussed in detail in the example of Ranitidine. Here it is important to highlight that the spread between pharmacy reimbursement and physician reimbursement varies considerably depending on the drug and whether a brand or generic is dispensed. For example, in the table above, the spread between pharmacy-dispensed and physician-dispensed Tramadol is only about 120%, not the over 1,000% difference observed for Ranitidine.

The difference in ingredient cost for brand-priced drugs is much smaller still. Naprosen (Brand) is very similarly priced for pharmacy- and physician-dispensed and Ultram (Brand) is even slightly cheaper when physician-dispensed.

4.3 Brand vs. generic

Except for physician-dispensed drugs, generic versions of a drug are always much less expensive if there are multiple manufacturers. Consequently, one factor in any equation of savings is the distribution between brand and generic in the dispensing venue. Physicians virtually always dispense generics, when available. Pharmacies are required to dispense generics, except when the physician specifies no substitution. Consequently, it is unlikely that shifting dispensing between physicians and pharmacists will change the overall distribution between brand-priced and generic equivalents.

For drugs, like Celebrex, where no generic equivalent was available at the time of the study, physicians are less likely to include these drugs in inventory, but when they do dispense these drugs, the cost is similar to pharmacy dispensing.

When a significant fraction of a particular drug with both brand and generic versions available is dispensed as the brand-priced type (e.g., Ultram), savings from shifting to pharmacy/MediCal pricing will be smaller as a percent of expenditures on that particular drug. Ultram is one of the few brand-priced drugs with generic equivalents where we observed more than 1% of a physician-dispensed drug type being the single-source brand. Brand-priced drugs represent a somewhat larger portion of pharmacy prescriptions. This is most likely because dispensing physicians rarely stock the branded version, so when the patient needs a specific brand version, the prescriptions are almost always filled by a pharmacy.

4.4 Less frequently dispensed or controlled drugs

Finally, some drugs are rarely or never dispensed by physicians. In the tables above, Lidoderm is not in the sample of physician-dispensed drugs because it was so infrequently physician dispensed. Physicians have been generally more reluctant to keep narcotics in inventory, and for some DEA classifications, they virtually never stock them. Physicians appear to be less likely to stock newer brand-priced drugs without generic substitutes (e.g., Ambien, Bextra), either because they do not yet prescribe them often enough, or possibly because the spread between AWP and what they are required to pay a repackager remains too narrow on these newer drugs. Also, there are a broad number of infrequently prescribed drugs that will not be economical for physicians to stock. For example (See Appendix 1), the top 20 drugs dispensed by physicians account for over 90% of the total dollars paid physicians. However, the top 20 pharmacy-dispensed drugs account for less than 50% of the dollars paid pharmacies. Over five times as many drugs (grouped by therapeutic equivalence, i.e., generic code sequence number) appeared in the sample of pharmacy-dispensed drugs as appeared in the sample of physician- dispensed drugs.

4.5 Estimate of the percent impact on total workers' compensation pharmacy cost of physician-dispensed drugs

We were provided access to a large sample of workers' compensation pharmaceutical transactions from the Industry Claims Information System (ICIS) maintained by the California Workers' Compensation Institute (CWCI). Pharmacy transaction data included:

- Drug description
- NDC
- Units dispensed
- Billed amount
- Paid amount
- Service date

A dataset was obtained from First Data Bank (FDB) including NDC, pricing effective for all service dates, drug type (generic, brand), drugs in the same therapeutic class, and an identifier for repackaged drugs. MediCal pricing data was obtained from the state, including NDC, FUL price or MAIC price, and the "no substitution" price.

These three datasets provided the tools to estimate the additional cost to employers/insurers of physician-dispensed drugs.⁹

Table 4.5.1 compares the average reimbursement for physician-dispensed drugs and reimbursement for the same drug dispensed at a pharmacy. The drugs are ranked from top to bottom starting with the single drug (Ranitidine) responsible for the highest percentage of payments to dispensing physicians. The 23 drugs on the list account for over 90% of physician reimbursements for repackaged drugs.

The first two columns give the names of the drugs and the broad therapeutic groups into which they fall. The most common therapeutic categories are antacids, non-steroidal anti-inflammatories (NSAID), muscle relaxants, and medications for pain. The third column gives the portion of each physician-dispensed drug that was dispensed as a generic. The final four columns compare the average reimbursement per unit for the generic and brand-priced drug, between physician-dispensed drugs and what MediCal reimbursed, on average, during the same period.

⁹ Greater detail on the datasets and any sample exclusions is included in Appendix 2.

Table 4.5.1

Top Physician Dispensed Drugs		Percent of Repack = Generic	Current Physician Dispensed Cost/Unit		MediCal Pharmacy Dispensed Cost/Unit	
Description	Drug class		Generic	Brand	Generic	Brand
RANITIDINE 150MG TABLET	Antacid	99.5%	\$3.09	\$3.20	\$0.22	\$2.36
SOMA 350MG TABLET	muscle relaxant	100.0%	\$2.97		\$0.50	\$3.85
NAPROSYN 500MG TABLET	NSAID	99.0%	\$1.66	\$1.85	\$0.33	\$1.77
ULTRAM 50MG TABLET	analgesic	83.0%	\$1.04	\$1.00	\$0.40	\$1.21
VICODIN 5/500 TABLET	pain medication Class III	100.0%	\$0.88		\$0.24	\$0.89
DARVOCET-N 100 TABLET	pain medication Class IV	100.0%	\$0.86		\$0.31	\$1.22
VOLTAREN 75MG TABLET EC	NSAID	100.0%	\$1.66		\$0.73	\$2.15
MOTRIN 800MG TABLET	NSAID	99.5%	\$0.61	\$0.49	\$0.18	\$0.53
PIROXICAM 20MG CAPSULE	NSAID	100.0%	\$3.23		\$0.29	\$3.45
FLEXERIL 10MG TABLET	muscle relaxant	100.0%	\$1.39		\$0.45	\$1.51
NAPROSYN 375MG TABLET	NSAID	100.0%	\$1.29		\$0.30	\$1.63
VICODIN ES TABLET	pain medication Class III	100.0%	\$0.71		\$0.25	\$0.82
HYDROCODONE/APAP 10/650 TAB	pain medication Class III	100.0%	\$1.25		\$0.29	\$1.39
LODINE 500MG TABLET	NSAID	100.0%	\$1.72		\$0.85	\$1.67
CELEBREX 200MG CAPSULE	NSAID	0.0%		\$4.08		\$2.86
NORCO 10/325 TABLET	pain medication Class III	100.0%	\$0.87		\$0.77	\$1.09
LODINE 400MG TABLET	NSAID	100.0%	\$2.12		\$0.53	\$1.79
CEPHALEXIN 500MG CAPSULE	antibiotic	100.0%	\$3.02		\$0.58	\$3.32
TYLENOL W/CODEINE #3 TABLET	narcotic-analgesic	100.0%	\$0.76		\$0.37	\$0.69
AMBIEN 10MG TABLET	sedative/hypnotics	0.0%		\$5.37		\$3.22
DAYPRO 600MG CAPLET	NSAID	100.0%	\$2.18		\$0.12	\$0.21
VIOXX 25MG TABLET	Cox II inhibitor	0.0%		\$4.65		\$2.80
ZANAFLEX 4MG TABLET	muscle relaxant	100.0%	\$2.20		\$0.89	\$1.54

Table 4.5.2 extends this analysis by computing the average reduction in price if the physician-dispensed drugs had been dispensed at the MediCal rate in effect on the service date. This table is the crux of the analysis. Column 7, "Overall % reduction" gives the average reduction in reimbursement for each physician-dispensed drug if dispensed at a pharmacy. The estimate is weighted for the distribution between brand-priced and generic. For example, if physician-dispensed Ranitidine had been dispensed by a pharmacy, on average, the cost would have been reduced by 93%. Norco, (a combination of Hydrocodone and Acetaminophen) would have seen a smaller reduction of 11%.

The next column calculates the impact of a change to pharmacy pricing on the total cost of physician-dispensed drugs. Again, for Ranitidine, prescriptions for this drug represented 31.2% of reimbursements for physician-dispensed drugs (column 8). Combining the information in column 7 and column 8, one can calculate that impact on the total cost of physician-dispensed drugs if any individual drug had been priced at the pharmacy level. For example, because Ranitidine accounts for such a large portion of physician-dispensed drug costs (31.2%) and the reduction is so large (93%), the effect of moving just this one drug to pharmacy pricing would be to reduce the total reimbursement to physicians for dispensing drugs by almost 29%. Because Norco accounts for a smaller portion of reimbursements (0.8%) and the reduction is smaller (11%), the impact of physician reimbursements is only 0.1%.

We analyzed these data for the full range of drugs dispensed by physicians. The total impact of switching to MediCal (pharmacy) reimbursement for physician-dispensed drugs would be to reduce the total reimbursement to dispensing physicians by 79.6%, or, stated another way, if the same drugs had been dispensed through pharmacies, the total cost would have been one-fifth of what was actually reimbursed to physicians.

Table 4.5.2

Top Physician-Dispensed Drugs	Percent of Repack = Generic	Current Physician-Dispensed Cost/Unit		MediCal Pharmacy Dispensed Cost/Unit		Overall Pct Change	% of total Physician-dispensed reimbursements	% change in total cost of repack
		Generic	Brand	Generic	Brand			
Description								
RANITIDINE 150MG TABLET	99.5%	\$3.09	\$3.20	\$0.22	\$2.36	-93%	31.2%	-28.9%
SOMA 350MG TABLET	100.0%	\$2.97		\$0.50	\$3.85	-83%	25.6%	-21.3%
NAPROSYN 500MG TABLET	99.0%	\$1.66	\$1.85	\$0.33	\$1.77	-79%	8.6%	-6.8%
ULTRAM 50MG TABLET	83.0%	\$1.04	\$1.00	\$0.40	\$1.21	-48%	5.2%	-2.5%
VICODIN 5/500 TABLET	100.0%	\$0.88		\$0.24	\$0.89	-73%	2.9%	-2.1%
DARVOCET-N 100 TABLET	100.0%	\$0.86		\$0.31	\$1.22	-64%	2.8%	-1.8%
VOLTAREN 75MG TABLET EC	100.0%	\$1.66		\$0.73	\$2.15	-56%	2.1%	-1.2%
MOTRIN 800MG TABLET	99.5%	\$0.61	\$0.49	\$0.18	\$0.53	-70%	1.8%	-1.3%
PIROXICAM 20MG CAPSULE	100.0%	\$3.23		\$0.29	\$3.45	-91%	1.6%	-1.5%
FLEXERIL 10MG TABLET	100.0%	\$1.39		\$0.45	\$1.51	-68%	1.3%	-0.9%
NAPROSYN 375MG TABLET	100.0%	\$1.29		\$0.30	\$1.63	-77%	1.3%	-1.0%
VICODIN ES TABLET	100.0%	\$0.71		\$0.25	\$0.82	-65%	1.2%	-0.8%
HYDROCODONE/APAP 10/650 TAB	100.0%	\$1.25		\$0.29	\$1.39	-77%	1.1%	-0.8%
LODINE 500MG TABLET	100.0%	\$1.72		\$0.85	\$1.67	-51%	1.0%	-0.5%
CELEBREX 200MG CAPSULE	0.0%		\$4.08		\$2.86	-30%	0.8%	-0.2%
NORCO 10/325 TABLET	100.0%	\$0.87		\$0.77	\$1.09	-11%	0.8%	-0.1%
LODINE 400MG TABLET	100.0%	\$2.12		\$0.53	\$1.79	-75%	0.8%	-0.6%
CEPHALEXIN 500MG CAPSULE	100.0%	\$3.02		\$0.58	\$3.32	-81%	0.7%	-0.6%
TYLENOL W/CODEINE #3 TABLET	100.0%	\$0.76		\$0.37	\$0.69	-51%	0.7%	-0.4%
AMBIEN 10MG TABLET	0.0%		\$5.37		\$3.22	-40%	0.5%	-0.2%
DAYPRO 600MG CAPLET	100.0%	\$2.18		\$0.12	\$0.21	-95%	0.4%	-0.4%
VIOXX 25MG TABLET	0.0%		\$4.65		\$2.80	-40%	0.3%	-0.1%
ZANAFLEX 4MG TABLET	100.0%	\$2.20		\$0.89	\$1.54	-59%	0.2%	-0.1%

4.6 Estimate of the total cost impact of physician-dispensed drugs

According to the latest Workers' Compensation Insurance Rating Bureau (WCIRB) of California report on "Workers Compensation Losses and Expenses," (2006), prescription-drug expenses for insured employers were \$436 million for calendar-year 2005. Insured employers account for approximately 72% of the total market in 2005. Consequently, we can estimate that total prescription reimbursements for all employers were approximately \$600 million. Using 8%, a conservative estimate of the average annual growth in prescription drug costs for all health care, we estimate that prescription-drug cost for the current calendar year (2006) will be \$471 million for insured employers and \$649 million for all employers.

From an insured-employer perspective, the most important estimate is incurred cost, as this determines how much employers actually pay: estimated incurred costs are the basis for premium setting. Because incurred costs represent what will be paid on the current policy-year claims often many years in the future, a rule of thumb used in previous CHSWC studies, is that incurred costs are two times current paid amounts.¹⁰ In addition, insurer premiums are set at a multiple to direct costs (pure premium rates set by the WCIRB and Department of Insurance). The multiple is expected to cover administrative costs, taxes, commissions, and profits. While this number varies over time, another decent rule of thumb is that premiums are set at 1.3 times estimated direct costs. Based on these rules, one can estimate that the total incurred cost of prescription drugs on policy year 2006 claims will be \$942 million (2 x \$471 million) and the total cost to insured employers for prescription drugs, including administrative costs, will be approximately \$1,225 million for policies incepting in 2006.

For the study, we reviewed a very large sample of workers' compensation prescription-drug claims. Focusing on calendar-year 2004, after the new MediCal-linked fee schedule was adopted, we found that physician-dispensed drugs accounted for 30.3% of prescriptions written and 50.8% of all payments for prescription drugs. Consequently, estimated payments to physicians for dispensing prescription drugs during the 2006 calendar year will amount to \$330 million.

Because, on average, physician-dispensed drugs cost four times what the same drug costs when dispensed by a pharmacy, the total impact of physician-dispensed drugs on the paid and incurred costs for employers can be estimated as follows:

- Paid amounts (all employers) for 2006 will be \$263 million higher because of physician dispensing.
- Incurred amounts, for insurers, will be \$379 million higher than if all prescriptions were dispensed through pharmacies.
- Insured-employer premiums for policy-year 2006 will be \$490 million higher than if all prescriptions were dispensed through pharmacies.
- Premium paid by insured employers will be 2.2% higher for policy-year 2006 than if all prescriptions were dispensed through pharmacies.

5.0 Other Cost-benefit Issues

A number of issues have been raised by proponents and opponents of physician dispensing:

¹⁰ This is somewhat conservative for an area like pharmaceuticals where the annual growth rates are quite high and likely to over-estimate somewhat for benefit areas like permanent disability, where benefits are fixed as of the injury date.

- For physician dispensing:
 - Improved access to prescriptions for workers,
 - Better compliance with ideal drug regimen,
 - Improved health outcomes, because of better compliance,
 - Physicians better able to deliver time-critical, lifesaving therapies that would otherwise be delayed, and
 - Better patient information and hence safer drug therapy, particularly for non-English speaking workers.
 - Provides physicians with an additional source of income to supplement OMFS reimbursements

- Against physician dispensing:
 - Higher cost (discussed above),
 - Increased incentive for physicians to over-prescribe,
 - Increased incentive for physicians to prescribe “what’s on the shelf” rather than best drug available,
 - Limited patient information, and
 - Reduced safety checks.

Some of the above issues cannot be answered definitively with the data and research at hand. However, the important issues can be informed by the data prepared for this project and from additional information from a review of prior published research.

5.1 Physician dispensing compensates for problems with access to pharmacy dispensing in workers’ compensation

In March 2000, Neuhauser et al. published a study on the accessibility of pharmacies to injured workers. At that time, some stakeholders speculated that fee-schedule changes in the reimbursement level of pharmaceuticals would lead to fewer pharmacies participating in the workers’ compensation system. This potential exodus of pharmacies, it was argued, would create an access problem for injured workers. For this report, researchers analyzed the proximity of 1.5 million injured workers against a database of pharmacies that were accepting workers’ compensation prescriptions. The results showed that at the time, California injured workers had to travel an average of 2.0 miles from their home to the closest pharmacy and had an average of 5 pharmacies within a 4-1/2 mile radius of their homes. It was noted that these estimates were conservative, as hospitals, clinics, physician offices and other facilities that also dispense drugs were not included in the analysis.

Given the adoption of the new fee schedule with its significant reduction in fee-schedule reimbursement levels from the prior fee schedule, the question of access has reemerged. Some of the same stakeholders who previously speculated that fee-schedule adjustments would compromise injured workers’ access to medications again have voiced concern over a potential reluctance of California’s pharmacies to continue to support the workers’ compensation system.

In order to revisit the access issue, the aforementioned access analysis has been updated with current data. The new analysis uses data on more than 1 million injured workers and a revised list of pharmacies that accepted workers’ compensation prescriptions in 2004. The results are displayed in the chart below, with comparative results summarized in Table 5.1.1.

Chart 5.1.1. Access Standard Comparison between Injured Workers' and Pharmacies

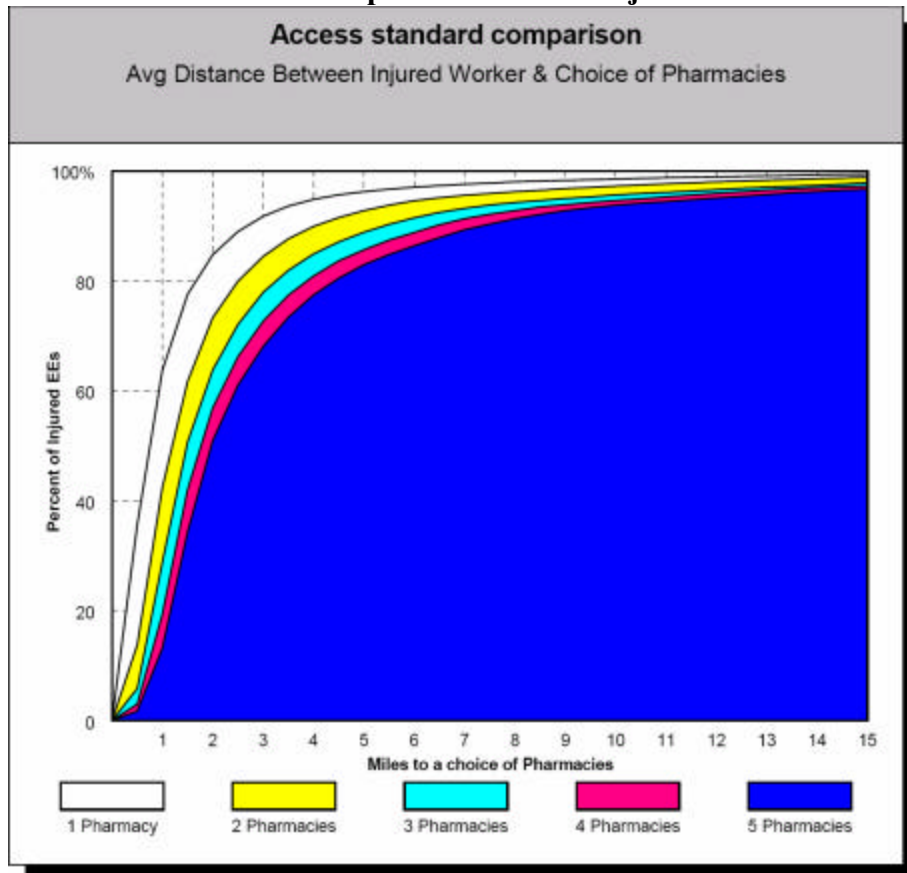


Chart 5.1.1 shows that more than 80 percent of California’s injured workers have a pharmacy that fills workers’ compensation prescriptions within 2 miles of their home. Almost 95 percent of injured workers have a pharmacy within 4 miles.

Table 5.1.1 compares the results of the prior 2000 analysis against 2004 revised and updated injured-worker and pharmacy-location data.

Table 5.1.1. Average Distance between Injured Worker & Choice of Pharmacies

Study Group	Average Distance Between Injured Worker & Choice of Workers' Comp Pharmacies				
	1	1 to 2	1 to 3	1 to 4	1 to 5
Original Study (Pre-2004 Fee Schedule)	2.0	2.7	3.4	3.9	4.5
Follow-up Study (under current 2004 Fee Schedule)	1.2	2.0	2.5	3.0	3.5
Percent Difference	-40.0%	-25.9%	-26.5%	-23.1%	-22.2%

The new data show that injured workers live within an average of 1.2 miles of a pharmacy that fills workers’ compensation prescriptions, a 40 percent reduction from the average of 2 miles noted in the

2000 study. Furthermore, the new study shows that on average, injured workers now have a choice of up to 5 pharmacies within 3.5 miles of their homes, compared to 4.5 miles in the 2000 study. This significant improvement in access is due in part to an increase in the number of pharmacies in California.

Other stakeholders have asserted that a change in reimbursement levels for repackaged drugs will result in physicians withdrawing from providing repackaged drugs, the result of which would cause another form of compromised access for injured workers. The authors also explored the association between physicians who dispense repackaged drugs and nearby pharmacies that routinely fill workers' compensation prescriptions.

Table 5.1.2. Access: Average Distance between Repackaged Drug Dispensing MD to Choice of Pharmacies¹¹

	Distance from Repackaged Drug Dispensing MD to Choice of Pharmacies (in miles)					
	1	1 to 2	1 to 3	1 to 4	1 to 5	Total
Median	0.5	0.9	1.1	1.3	1.5	1.1
Mean	0.8	1.2	1.6	1.9	2.2	1.6

Table 5.1.2 shows that on average, injured workers need travel less than one mile from their physician's office to access a pharmacy to fill their workers' compensation prescription. Injured workers would have a choice of 5 pharmacies within 2.2 miles from their repackaged drug- dispensing physician.

We conclude that there is no evidence that prior to the new pharmacy schedule, reimbursement rates compromised workers' access to pharmacies willing to dispense drugs under workers' compensation. There is also no evidence that workers' access to pharmacies willing to fill workers' compensation prescriptions was reduced subsequent to the new pharmacy schedule. Access is at least as good in the post-SB 228 environment, if not better.

5.2 Physician dispensing leads to better compliance with drug regimes and, consequently, better health outcomes.

A major thrust of arguments in favor of physician dispensing revolves around better patient care and, ultimately, better health outcomes. The contention is that if physicians dispense directly to patients, patients will be more likely to obtain the drugs and, consequently, more likely to follow the appropriate regime. In turn, this will lead to better health outcomes.

This argument certainly has some validity. It is undeniable that if the drug is dispensed by the physician, then patients are more likely (100% of the time) to obtain the prescribed drug than if they have to fill the prescription at a pharmacy. However, the impact on health outcomes is unclear. For example, the most common physician-dispensed drug is Ranitidine, an antacid typically prescribed for important, but infrequent side-effects for medium to long-term treatment with NSAIDs for conditions such as arthritis or chronic pain. One can imagine that patients fill prescriptions for side effects

¹¹ Includes pharmacies that have filled at least one workers' compensation prescription.

whenever the discomfort from the side effects due to the primary medication exceeds the anticipated side effects from the secondary medication and the burden of filling the prescription. Since all medications carry the risk of negative side effects, it is appropriate to think that some threshold burden on filling the prescription is beneficial.

The literature here is mixed. Osterberg and Blaschke (2005) present an extensive review article on compliance issues, listing major barriers to compliance with the prescribed drug regime, but never identify dispensing by physicians as a positive or negative factor. This suggests that at least peer-review research is silent on the advantage/disadvantages of physician dispensing on compliance. Ginde, et al. (2003) selected patients because they were candidates for antibiotics and the appropriate regime was important and clearly defined. The authors found a lower percentage of patients obtained drugs when directed to a pharmacy (at no cost) vs. when the prescription was received directly from the hospital after visiting the emergency department. However, actual compliance with the regime, based on self-reports, was the same and return visits to the emergency department were similar. The Ginde study was the only study reviewed that even attempted to link provider dispensing with outcomes.

5.3 Incentive for physician to over-prescribe (or prescribe “what’s on the shelf”)

One of the most common and important concerns raised by opponents of physician dispensing is that physicians who profit on the dispensing side may respond to the incentive by prescribing more drugs or the same drugs more often than non-dispensing physicians. Assuming that physicians without a profit incentive prescribe appropriately, opponents would argue that any additional scripts represent over-prescribing.

Physician dispensing of pharmaceuticals can be seen as a special case of a fairly large body of research addressing “physician induced demand” in health-care economics. Pertinent to the issue here, this research has consistently found that when physicians have a financial interest in a particular auxiliary service, the incentive tends to drive increased utilization. That utilization is generally interpreted as excess treatment. However, while the literature consistently finds much higher utilization when the physician has a financial interest in the ancillary service, the literature is not as strong at demonstrating that the services represent over-utilization rather than a more appropriate level of utilization relative to non-referring physicians.

Incentives for physician referral to physician-owned laboratories for medical testing have been extensively evaluated. The research on physician-owned laboratories was sufficiently compelling that Congress enacted national legislation restricting physician financial interest in medical laboratories (Iglehart, J. K., 1990, 1991). This was probably the initial thrust of statutory and regulatory restrictions on physician “self-referral” in the face of convincing evidence of higher-utilization driven by financial incentives.

Physician “self-referral” to imaging at centers where the referring physician had a financial interest or when the imaging was done within the doctor’s office, was the subject of extensive research in the 1980s and early 1990s. Hilman, et al., 1990, 1992; Mitchell, J.M. and Scott, E., 1992; and Kouri, Parsons and Alpert, 2002, among others, found evidence of substantially increased utilization of diagnostic imaging when physicians had a direct financial interest in the imaging process. Swedlow et al, (1992) made similar findings specific to workers’ compensation.

Research on the impact of physician dispensing on pharmaceutical use and health outcomes is more limited, particularly in the U.S. Much of the research and commentary occurred during the 1980s and

surrounded federal decisions regarding Medicare/Medicaid prescriptions drugs. Medicaid generally prohibits payment for repackaged drugs and otherwise limits payments to a schedule of payments based on reimbursements to pharmacies.

More recently, the issue has risen to prominence because of the dramatically increasing importance of pharmaceuticals as a portion of total health-care costs. But, not much has been written about the extent of physician dispensing or its impact. Abood (1989) was the only reference identified that estimated the extent of physician dispensing, 1/10th of 1% of scripts. In addition, much of the research and commentary are being generated outside the U.S. and/or in journals associated with pharmacy professional association, presenting a potential for bias. In particular, pharmacists have seen the increase in physician dispensing as a challenge to their income and have responded with aggressive efforts to emphasize the importance of the role of the pharmacist. Gilbert (1998) discusses much of the tension between pharmacists and dispensing doctors, using the perspective of South Africa. Axon (1993), in a pharmacy research journal, references a UK study, not identified, to say that dispensing doctors issued 12.9% more prescriptions than non-dispensing colleagues, at an additional 10.3% higher expenditure per patient. Nelson (1987) argues that physicians “might” dispense what is on the shelf, while Adritz and Rogan, pharmacy college professors, argue that benefits to patient of physician dispensing are over-estimated. Vivian et al. (2006) argue for a narrow legal interpretation of statutes regarding physician dispensing.¹²

On the other hand, physicians and medical associations actively protect their professional turf. Lober et al. (1988) proffer a non-empirically based, review article supporting physician dispensing. And certainly in the recent California debate both physicians and the distributors of repackaged drugs have marshaled several studies purporting to support the advantages of physician dispensing. Again, these studies are generally driven by the particular professional perspective of the author(s).

Independent research literature has generally found that physician dispensing leads to higher utilization of prescriptions drugs. In addition, some literature also finds the increased utilization is also associated with inappropriate or excess dispensing. Gilbert (1998) found dispensing-physicians averaged 2.38 scripts per patient while non-dispensers average 1.67. It is not clear whether the study controlled for differences in medical specialty, patients, etc. Trapp and Hansen (2002a, 2002b), in Zimbabwe, find dispensing doctors did not differ by rationality of drug prescribing which was poor for both dispensing and non-dispensing physicians. However, dispensing doctors prescribed sub-curative doses significantly more often and prescribed correct doses significantly less often. Park, et al. (2005) found that in Korea, after imposition of restrictions on physician dispensing, antibiotic prescribing declined substantially for patients with viral illnesses (inappropriate use of antibiotics) and only minimally for patients with bacterial illnesses (appropriate use of antibiotics). The dispensing restrictions also reduced the prescribing of non-antibiotic drugs. Nizami et al. (1996), doing a study in Pakistan, found dispensing doctors under-prescribe oral re-hydration salt (ORS), the cheapest, first-level response, and over prescribe of anti-diarrhea medications relative to doctors that do not dispense. Trap, B and E. Hansen, (2002), find dispensing physicians contributed to increasing health hazards, cost, and risk of developing bacterial resistance, by inappropriately prescribing antibiotics.

The data prepared for this study can not be used to address directly the question of whether physician dispensing changes a physician’s prescribing practices. The prescriptions were not linked to individual claims or individual physicians. However, some dramatic differences between the distribution of drugs between dispensing and non-dispensing physicians suggest that their prescribing practices differ.

¹² Reference the court case in CA.

A review of the Tables in Appendix 1 shows substantial differences between the drugs most frequently dispensed by physicians and pharmacists. Some of these differences can be explained by other issues discussed in the Appendix, e.g., dispensing physicians are less likely to dispense low-margin, single-source, brand-name drugs, drugs on DEA restricted lists, and infrequently prescribed drugs. However, some of the differences are difficult to explain except as incentive-driven prescribing practices. For example, although 70% of scripts are pharmacy-dispensed, 9 out of 10 prescriptions for Ranitidine are physician-dispensed. Ranitidine, as noted early, has one of the highest mark-ups associated with repackaged drugs, 1,750% of pharmacy reimbursement for the same ingredient portion. About ¾ of scripts for Carisprodol/Soma (a commonly dispensed muscle relaxant) are dispensed by physicians. Again, Carisprodol is also associated with a very high mark-up when dispensed by physicians. These two drugs alone account for 57% of all dollars paid for drugs dispensed by physicians, but only 2.6% of amounts paid to pharmacies.

5.4 Claim: Eliminating physician-dispensing would endanger patients by limiting access to time-critical, life-saving medications

This claim has been made several times in different forums by proponents of physician dispensing. However, nothing in the data reviewed supports this contention. A review of the top 50 repackaged drugs does not reveal the types of drugs that might be considered time-critical, life-saving prescriptions.

5.5 Information and safety

Both proponents and opponents of physician dispensing claim the high ground on information and safety. There is no definitive literature on this issue and empirically, it would be complex to establish which venue is the safest for dispensing. However, it is difficult to understand, logically, why physician dispensing would result in better information being communicated to the patient than pharmacy dispensing, especially in an occupational-medicine setting. First, proponents argue that physicians will give better or more complete information than pharmacists. However, it is not clear why physicians would give different information depending on the source of dispensing. We expect that physicians will give full and complete information to their patients whether they dispense or not. On the other hand, pharmacy dispensing allows another opportunity to communicate appropriate information to patients that should only reinforce safer dispensing and consumption.

One concern raised about physician dispensing within occupational medicine is potential problems with drug interactions. Occupational physicians may not be completely or accurately informed about all medications the patient takes for non-occupational conditions. If the worker is using the same pharmacist for all medications, there is an additional check on potential drug interactions.

Finally, both proponents and opponents raise the issue of language barriers and potential safety problems. Here again, it is difficult to find logical support for physician dispensing leading to better information. It would seem that the treating physician (often selected by the employer, not the worker) will be no more likely to speak the native language of a non-English speaking worker than the pharmacist (probably selected by the worker). Also, it would only seem to increase the chances of appropriate communication to have cautions communicated from both sources rather than either one alone.

6.0 Conclusions

Physician-dispensed prescription drugs comprise a significant portion of all pharmaceutical prescriptions dispensed in California's workers' compensation system. Because of limits on the reach

of statute and regulations adopted under SB 228, physician-dispensed pharmaceuticals are also much more expensive than the same drugs dispensed through a pharmacy. This report documents the extra costs placed on the system by physician-dispensed drugs. The report also reviews research on both the positive and negative impacts of physician dispensing, including the main arguments raised by proponents at CHSWC meetings and at DWC regulatory hearings.

Main findings on the direct cost of physician-dispensed drugs:

- Physician dispensing is much more common than most observers expected. 30.3% of prescriptions dispensed in the California workers' compensation system are dispensed by physicians directly from their offices.
- Approximately half (50.8%) of the total cost of pharmaceuticals in the system is paid to physicians for prescriptions dispensed from their offices.
- Because of the structure of the OMFS, physician-dispensed pharmaceuticals are much more costly than the same drugs dispensed by a pharmacy. On average, physician-dispensed drugs cost 490% of what is paid to pharmacies. In some cases, including the most commonly prescribed drug dispensed by physicians, the mark-up exceeds 1000%.
- We estimate that for calendar-year 2006, insurers and self-insured employers will pay \$649 million for prescription drugs. Of this paid amount, \$263 million will be paid to dispensing physicians in excess of what would have been paid for the same drugs if dispensed by a pharmacy.
- It is estimated that insured employers will face premiums for the 2006 policy year that are \$490 million dollars higher than if all drugs were dispensed through pharmacies. This represents 2.2% of premium for the policy year.

Other findings on costs and benefits:

- The research literature on the subject of physician-dispensed drugs generally argues that physician dispensing leads to increased, possibly inappropriate, use of prescription drugs. The studies have usually been done outside the U.S., and the results cannot necessarily be generalized to the California workers' compensation. However, research on physician practices with similar incentives, such as self-referral for lab tests or imaging, has consistently found that incentives inherent in self-referral lead to over-utilization.
- The data in this study were not designed to determine whether physician dispensing led to increased utilization or changes in the types of drugs prescribed. However, the study does find striking differences in the types of drugs dispensed by physicians and pharmacies. This research could be extended to allow more thorough analysis of how financial incentives may change prescribing practices.
- Research finds only weak evidence for better compliance with drug regimes when the physician dispenses directly to the patient. There is virtually no research demonstrating better health outcomes or more rapid recovery when physicians dispense.
- It would be important to extend the research in this study to examine whether extensive use of physician dispensing does affect health outcomes, and if so, whether the effect is positive or negative.

References:

- Abood, R.R., "Physician dispensing: issues of law, legislation and social policy." *American Journal of Law and Medicine*, 14(4), 1989.
- Andritz, M. H. and M.P. Rogan, "Drug dispensing by physicians: promoter's claims examined." *Pediatrics*, 82(3), 1988.
- Axon, Stephen R., "Dispensing doctors—an international perspective." *Journal of Social and Administrative Pharmacy*, 11(3), 1994.
- Gilbert, L., "Dispensing doctors and prescribing pharmacists: A South African perspective." *Soc. Sci. Med.* 46(1) 83-95. 1998.
- Ginde, A A., BC Von Harz, D. Turnbow, and LM Lewis, "The effect of ED prescription on dispensing on patient compliance." *American Journal of Emergency Medicine*, 2003, 21(4).
- Hillman, B.J., C.A. Joseph, M.R. Mabry, J.H. Sunshine, D. Kennedy, and M. Noether, "Frequency and costs of diagnostic imaging in office practice—a comparison of self-referring and radiologist-referring physicians." *New England Journal of Medicine*, 323(23), 1990.
- Hillman, B.J., G. T. Olson, P.E. Griffith, J.H. Sunshine, C.A. Joseph, S.D. Kennedy, W.R. Nelson and L.B. Bernhardt, "Physicians' utilization and charges for outpatient diagnostic imaging in a Medicare population." *JAMA* 268(15) 1992.
- Iglehart, J.K., "Congress moves to regulate self-referral and physicians' ownership of laboratories." *New England Journal of Medicine*, 322(23) 1990.
- Iglehart, J.K., "Efforts to address the problem of physician self-referral." *New England Journal of Medicine*, 325(25) 1991.
- Kouri, D.E., R.G. Parsons, and H.R. Alpert, "Physician self-referral for diagnostic imaging: review of the empiric literature." *American Journal of Roentgenology*, 179(4) 2002.
- Lober, C. W., S.D. Behlmer, N. S. Penneys, J.L. Shupack, and B. H. Thiers, "Physician drug dispensing." *J. of American Academy of Dermatology*, 19(5), 1988.
- Mitchell, J.M., and E. Scott, "Physician self-referral: empirical evidence and policy implications." *Advance Health Economics and Health Services Research*, vol 13, 1992.
- Nelson, S., "Drug dispensing by MDs stirs controversy." *Hospitals* 61, 1987.
- Neuhauser, F, A. Swedlow, E. Edelstein, and L. Gardner, "Study of the cost of pharmaceuticals in workers' compensation." Report for the Commission on Health and Safety and Workers' Compensation. San Francisco, CA. 2000.
- Nizami, S.Q., I. A. Khan, and Z. A. Bhutta, " Drug prescribing practices of general practitioners an pediatricians for childhood diarrhea in Karachi, Pakistan." *Social Science and Medicine*," 42(8), April, 1996, 1133-1139.

Osterberg, L. and T. Blaschke, "Adherence to Medication." *New England Journal of Medicine*, 353(5), August, 4, 2005.

Park, S., S. Soumerai, A. Adams, "Antibiotic use following a Korean national policy to prohibit medication-dispensing by physicians." *Health Policy and Planning* 20 (5), September, 2005.

Ryan, M. and C. Bond, "Dispensing physicians and prescribing pharmacists: economic consideration for the UK." *Pharmacoeconomics*, 5(1), 1994.

Trap, B., and E. Hansen, "Cotrimoxazole prescribing by dispensing and non-dispensing doctors: do they differ in rationality?" *Tropical Medicine and International Health*, 7(10) 878-885, Oct. 2002.

Swedlow, A, G. Johnson, N. Smithline, and A. Milstein, "Increased costs and rates of use in the California workers' compensation system as a result of self-referral by physicians." *New England Journal of Medicine*, 327(21) 1992.

Trap, B, E. Hansen, and H. Hoberzeil, "Prescription habits of dispensing and non-dispensing doctors in Zimbabwe." *Health Policy and Planning*, 17(3) 2002. 288-95.

Vivian, J. C., "Physician-owned pharmacies." *U.S. Pharmacist*, March, 2006.

WCIRB, "2005—Losses and Expenses." *Workers' Compensation Insurance Rating Bureau*, San Francisco, CA. 2006.

Wynn, Barbara, "Paying for repackaged drugs under the California Workers' Compensation Official Medical Fee Schedule." Working paper prepared for the Commission on Health and Safety and Workers' Compensation, May 2005.

Appendix 1: Tables showing top 50 drugs by total cost and number of scripts

The following tables identify the top 50 drugs separately by the number of scripts written and total cost. The tables allow comparisons between the distribution of drugs prescribed and dispensed by physicians and those where the physician prescribes, but the drugs are dispensed by a pharmacy.

The tables need to be evaluated with some care. Physicians will not dispense the full range of drugs available. They will not find it convenient and/or profitable to maintain inventories of infrequently prescribed drugs. They may also find it unprofitable to maintain inventories of drugs that have low-profit margins, given that they dispense much less frequently than a pharmacy and each individual transaction may be more costly to inventory and dispense than with a high-volume pharmacy. Brand-name drugs without a generic equivalent is a class of drugs where the profit margin is lower than for drugs commonly dispensed as generics. Consequently, infrequently prescribed drugs, like specialized antibiotics and brand-name drugs without a generic equivalent, like Bextra, will be over-represented in pharmacy dispensing.

On the other hand, frequently prescribed drugs with broad application in occupational medicine are more appropriately compared between the two dispensing venues. In any case, the bias of any comparison is that a drug will be over-represented within pharmacy dispensing.

There are several and sometimes dozens of drugs within a therapeutic class. Drugs may have therapeutic advantages in particular cases, specific drug interactions with other medications the worker may be taking, or problematic side effects for any particular patient. Dispensing physicians cannot maintain as broad a selection of drugs as pharmacies, whose primary business is dispensing. Consequently, if physicians are not limiting their choice of the best drug to prescribe by what is “available on the shelf,” they will shift to pharmacies, at least to some extent, the process of dispensing all but the most commonly prescribed drugs. Therefore, the drugs universally maintained in inventory will be somewhat over-represented in the distribution of physician-dispensed drugs. Drugs infrequently maintained in physician-dispensed inventories will be over-represented in pharmacy dispensing relative to physician dispensing, because dispensing physicians may prescribe those drugs, but have them filled at a pharmacy.

The tables are arranged in three sets of two tables. The first set of tables lists the top 50 drugs dispensed in workers’ compensation, regardless of where they were dispensed, a physician’s office or pharmacy. The second pair of tables gives the top 50 drugs among those dispensed from physician offices. The third set gives the top 50 drugs as dispensed by pharmacies. Within each of these three sets, the first table gives the top 50 drugs by total cost and the second table gives the top 50 by number of scripts dispensed.

**All Prescriptions: Top 50 Drugs (GCN Sequence Number) Paid Amounts
(Repack & Pharmacy)**

GCN_S eqno	Percent of all \$	Description	Brand	Generic	Drug class
011673	16.3%	RANITIDINE 150MG TABLET	Zantac	Ranitidine	Antacid
004663	14.0%	SOMA 350MG TABLET	Soma	Carisoprodol	Muscle relaxant
008362	4.7%	NAPROSYN 500MG TABLET	Naprosyn	Naproxen	NSAID
041286	4.0%	CELEBREX 200MG CAPSULE	Celebrex	Celecoxib	NSAID
023139	3.1%	ULTRAM 50MG TABLET	Ultram	Tramadol	Analgesic
043256	2.7%	LIDODERM 5% PATCH			
004204	2.3%	VICODIN 5/500 TABLET	Vicodin	Hydrocodone	Pain medication Class III
030623	2.3%	NORCO 10/325 TABLET	Vicodin	Hydrocodone	Pain medication Class III
042635	2.3%	VIOXX 25MG TABLET	Vioxx		Cox II inhibitor
049798	1.9%	BEXTRA 20 MG TABLET	Bextra	Valdecoxib	Cox-II inhibitor
004273	1.8%	DARVOCET-N 100 TABLET	Darvocet-N	Acetam/propox.	Pain medication Class IV
019188	1.7%	AMBIEN 10MG TABLET	Ambien	Zolpidem	Sedative/hy pnotics
021414	1.5%	NEURONTIN 300MG CAPSULE	Neurontin	Gabapentin	Anti- seizure
008350	1.2%	MOTRIN 800MG TABLET	Motrin	Ibuprofen	NSAID
008374	1.2%	VOLTAREN 75MG TABLET EC	Voltaren	Diclofenac	NSAID
004207	1.1%	VICODIN ES TABLET	Vicodin	Hydrocodone	Pain medication Class III
004681	1.0%	FLEXERIL 10MG TABLET	Flexeril	Cyclobenzaprine	Muscle relaxant
048456	1.0%	ULTRACET TABLET	Ultracet	Tramadol	Opiate
024506	0.9%	OXYCONTIN 40MG TABLET SA	Oxycontin	Oxycodone	Opiate
008371	0.8%	PIROXICAM 20MG CAPSULE	Feldene	Piroxicam	NSAID
041805	0.8%	NEURONTIN 600 MG TABLET	Neurontin	Gabapentin	Anti- seizure
049795	0.8%	BEXTRA 10 MG TABLET	Bextra	Valdecoxib	Cox-II inhibitor
051112	0.8%	SKELAXIN 800 MG TABLET	Skelaxin	Metaxalone	Muscle relaxant
008361	0.7%	NAPROSYN 375MG TABLET	Naprosyn	Naproxen	NSAID
025702	0.7%	OXYCONTIN 80MG TABLET SA	Oxycontin	Oxycodone	Opiate
009043	0.6%	CEPHALEXIN 500MG CAPSULE	Keflex	Cephalosporins	Antibiotic
016899	0.6%	HYDROCODONE/APAP 10/650 TAB	Vicodin	Hydrocodone	Pain medication

					Class III
030107	0.6%	PREVACID 30 MG CAPSULE DR	Prevacid	LansoprazoleSR	PPI/Anti-acid
004165	0.5%	TYLENOL W/CODEINE #3 TAB	Tylenolw/cod.	Acet. w/codeine	Narcotic-analgesic
020175	0.5%	LODINE 400MG TABLET	Lodine	Etodolac	NSAID
024505	0.5%	OXYCONTIN 20MG TABLET SA	Oxycontin	Oxycodone	Opiate
027368	0.5%	LODINE 500MG TABLET	Lodine	Etodolac	NSAID
015881	0.4%	DURAGESIC 50MCG/HR PATCH	Duragesic	Fentanyl topical	Narcotic analgesics
015883	0.4%	DURAGESIC 100MCG/HR PATCH	Duragesic	Fentanyl topical	Narcotic analgesics
029837	0.4%	TOPAMAX 25 MG TABLET	Topomax	Topiramate	Anti-convulsant
030274	0.4%	ZANAFLEX 4MG TABLET	Zanaflex	Tizanidine HCL	Muscle relaxant
033530	0.4%	PRILOSEC 20 MG CAPSULE DR	Prilosec	Omeprazole	Antacid
044758	0.4%	VIOXX 50 MG TABLET	Vioxx		Cox II inhibitor
004664	0.3%	SKELAXIN 400MG TABLET	Skelaxin	Metaxalone	Muscle relaxant
016574	0.3%	RELAFEN 500MG TABLET	Relafen	Nabumetone	NSAID
017204	0.3%	DAYPRO 600MG CAPLET	Daypro	Oxaprozin	NSAID
019187	0.3%	AMBIEN 5MG TABLET	Ambien	Zolpidem	Sedative/hypnotics
029156	0.3%	MOBIC 7.5 MG TABLET	Mobic	Meloxicam	NSAID
041285	0.3%	CELEBREX 100MG CAPSULE	Celebrex	Celecoxib	NSAID
041806	0.3%	NEURONTIN 800 MG TABLET	Neurontin	Gabapentin	Anti-seizure
046228	0.3%	ZOLOFT 50 MG TABLET	Zoloft	Sertraline	Anti-depressant
046229	0.3%	ZOLOFT 100 MG TABLET	Zoloft	Sertraline	Anti-depressant
046404	0.3%	EFFEXOR XR 75 MG CAPSULE SA	Effexor	Venlafaxine	Anti-depressant
047526	0.3%	NEXIUM 40 MG CAPSULE	Nexium	Esomeprazole magnesium	Antacid
050712	0.3%	LEXAPRO 10 MG TABLET	Lexapro	Escitalopram oxalate	Anti-depressant

79.4% Top 50 as percent of all paid amounts (pharmacy and repackaged)

**All Prescriptions: Top 50 Drugs (GCN Sequence Number) by Prescriptions
(Repack & Pharmacy)**

GCN_S eqno	% of all scripts	Description	Brand	Generic	Drug class
004204	10.4%	VICODIN 5/500 TABLET	Vicodin	Hydrocodone	Pain medication Class III
004663	7.2%	SOMA 350MG TABLET	Soma	Carisoprodol	Muscle relaxant
011673	5.3%	RANITIDINE 150MG TABLET	Zantac	Ranitidine	Antacid
004273	4.2%	DARVOCET-N 100 TABLET	Darvocet-N	Acetam. & propox.	Pain medication Class IV
008362	4.2%	NAPROSYN 500MG TABLET	Naprosyn	Naproxen	NSAID
008350	4.1%	MOTRIN 800MG TABLET	Motrin	Ibuprofen	NSAID
004207	3.7%	VICODIN ES TABLET	Vicodin	Hydrocodone	Pain medication Class III
023139	3.4%	ULTRAM 50MG TABLET	Ultram	Tramadol	Analgesic
030623	3.4%	NORCO 10/325 TABLET	Vicodin	Hydrocodone	Pain medication Class III
041286	2.8%	CELEBREX 200MG CAPSULE	Celebrex	Celecoxib	NSAID
004681	2.5%	FLEXERIL 10MG TABLET	Flexeril	Cyclobenzaprine	Muscle relaxant
042635	2.0%	VIOXX 25MG TABLET	Vioxx		Cox II inhibitor
008349	1.7%	MOTRIN 600MG TABLET	Motrin	Ibuprofen	NSAID
004165	1.6%	TYLENOL W/CODEINE #3 TAB	Tylenol	Codeine	Pain reliever/fever reducer
009043	1.5%	CEPHALEXIN 500MG CAPSULE	Keflex	Cephalosporins	Antibiotic
019188	1.5%	AMBIEN 10MG TABLET	Ambien	Zolpidem	Sedative/hypnotics
049798	1.5%	BEXTRA 20 MG TABLET	Bextra	Valdecoxib	Cox-II inhibitor
048456	1.2%	ULTRACET TABLET	Ultracet	Tramadol	Opiate
021414	1.0%	NEURONTIN 300MG CAPSULE	Neurontin	Gabapentin	Anti-seizure
043256	1.0%	LIDODERM 5% PATCH			
008374	0.8%	VOLTAREN 75MG TABLET EC	Voltaren	Diclofenac	NSAID
016899	0.7%	HYDROCODONE/APAP 10/650 TAB	Vicodin	Hydrocodone	Pain medication Class III
051112	0.7%	SKELAXIN 800 MG TABLET	Skelaxin	Metaxalone	Muscle relaxant
004205	0.6%	HYDROCODONE/APAP 7.5/500 TAB	Vicodin	Hydrocodone	Pain medication Class III

008361	0.6%	NAPROSYN 375MG TABLET	Naprosyn	Naproxen	NSAID
008371	0.6%	PIROXICAM 20MG CAPSULE	Feldene	Piroxicam	NSAID
046046	0.6%	ELAVIL 25 MG TABLET	Elavil	Amitriptyline HCL 25 MG Tab	Anti-depressant
049795	0.6%	BEXTRA 10 MG TABLET	Bextra	Valdecoxib	Cox-II inhibitor
003768	0.5%	DIAZEPAM 5MG TABLET	Diastat	Diazepam	Seizure/muscle spasms
030274	0.5%	ZANAFLEX 4MG TABLET	Zanaflex	Tizanidine HCL	Muscle relaxant
003690	0.4%	TEMAZEPAM 30MG CAPSULE	Restoril	Temazepam	Sleep aid
003766	0.4%	DIAZEPAM 10MG TABLET	Diastat	Diazepam	Seizure/muscle spasms
004655	0.4%	METHOCARBAMOL 750MG TAB	Robaxin	Methocarbamol	Muscle relaxant
016574	0.4%	RELAFEN 500MG TABLET	Relafen	Nabumetone	NSAID
020175	0.4%	LODINE 400MG TABLET	Lodine	Etodolac	NSAID
026439	0.4%	HYDROCODONE/APAP 10/500 TAB	Vicodin	Hydrocodone	Pain medication Class III
046214	0.4%	FLUOXETINE 20 MG CAPSULE	Prozac	Fluoxetine HCL 20 MG Capsule	Anti-depressant
046241	0.4%	TRAZODONE 50 MG TABLET	Desyrel	Trazodone	Anti-depressant
003689	0.3%	TEMAZEPAM 15MG CAPSULE	Restoril	Temazepam	Sleep aid
003773	0.3%	ALPRAZOLAM 0.25MG TABLET	Xanax	Alprazolam	Anti-anxiety
003774	0.3%	ALPRAZOLAM 0.5MG TABLET	Xanax	Alprazolam	Anti-anxiety
019187	0.3%	AMBIEN 5MG TABLET	Ambien	Zolpidem	Sedative/hypnotics
021413	0.3%	NEURONTIN 100MG CAPSULE	Neurontin	Gabapentin	Anti-seizure
030107	0.3%	PREVACID 30 MG CAPSULE DR	Prevacid	Lansoprazole SR	PPI/anti-acid
041285	0.3%	CELEBREX 100MG CAPSULE	Celebrex	Celecoxib	NSAID
041805	0.3%	NEURONTIN 600 MG TABLET	Neurontin	Gabapentin	Anti-seizure
044758	0.3%	VIOXX 50 MG TABLET	Vioxx		Cox II inhibitor
047431	0.3%	HYDROCODONE-APAP 7.5/325 TB	Norco 7.5/325 Tablet	Anexsia 7.5/325 MG Tablet	
047478	0.3%	FLEXERIL 5 MG TABLET	Flexeril	Cyclobenzaprine	Muscle Relaxent
050712	0.3%	LEXAPRO 10 MG TABLET	Lexapro	Escitalopram oxalate	Anti-depressant

77.2% Top 50 as percent of all prescriptions (pharmacy and repackaged)

Repackaged Drugs: Top 50 Drugs (GCN Sequence Number) by Paid \$

GCN_S eqno	% of Repack Paid	Description	Brand	Generic	Drug class
011673	31.2%	RANITIDINE 150MG TABLET	Zantac	Ranitidine	Antacid
004663	25.6%	SOMA 350MG TABLET	Soma	Carisoprodol	Muscle relaxant
008362	8.6%	NAPROSYN 500MG TABLET	Naprosyn	Naproxen	NSAID
023139	5.2%	ULTRAM 50MG TABLET	Ultram	Tramadol	Analgesic
004204	2.9%	VICODIN 5/500 TABLET	Vicodin	Hydrocodone	Pain medication Class III
004273	2.8%	DARVOCET-N 100	Darvocet-N	Acetam & Propox.	Pain medication Class IV
008374	2.1%	VOLTAREN 75MG TABLET EC	Voltaren	Diclofenac	NSAID
008350	1.8%	MOTRIN 800MG TABLET	Motrin	Ibuprofen	NSAID
008371	1.6%	PIROXICAM 20MG CAPSULE	Feldene	Piroxicam	NSAID
004681	1.3%	FLEXERIL 10MG TABLET	Flexeril	Cyclobenzaprine	Muscle relaxant
008361	1.3%	NAPROSYN 375MG TABLET	Naprosyn	Naproxen	NSAID
004207	1.2%	VICODIN ES TABLET	Vicodin	Hydrocodone	Pain medication Class III
016899	1.1%	HYDROCODONE/APAP 10/650 TAB	Vicodin	Hydrocodone	Pain medication Class III
027368	1.0%	LODINE 500MG TABLET	Lodine	Etodolac	NSAID
020175	0.8%	LODINE 400MG TABLET	Lodine	Etodolac	NSAID
030623	0.8%	NORCO 10/325 TABLET	Vicodin	Hydrocodone	Pain medication Class III
041286	0.8%	CELEBREX 200MG CAPSULE	Celebrex	Celecoxib	NSAID
004165	0.7%	TYLENOL W/CODEINE #3 TABLET	Tylenol w/Codeine	Acetam.and Codeine	Pain reliever/fever reducer
009043	0.7%	CEPHALEXIN 500MG CAPSULE	Keflex	Cephalosporins	Antibiotic
019188	0.5%	AMBIEN 10MG TABLET	Ambien	Zolpidem	Sedative/hypno tics
008373	0.4%	VOLTAREN 50MG TABLET EC	Voltaren	Diclofenac	NSAID
015961	0.4%	LODINE 300MG CAPSULE	Lodine	Etodolac	NSAID

017204	0.4%	DAYPRO 600MG CAPLET	Daypro	Oxaprozin	NSAID
004660	0.3%	PARAFON FORTE DSC 500MG CPT	Parafon Forte	Chlorzoxazone	Muscle relaxant
011667	0.3%	CIMETIDINE 400MG TABLET	Tagamet	Cimetidine	Histamine receptor antagonists
016574	0.3%	RELAFEN 500MG TABLET	Relafen	Nabumetone	NSAID
042635	0.3%	VIOXX 25MG TABLET	Vioxx		Cox II Inhibitor
046046	0.3%	EFFEXOR XR 75 MG CAPSULE SA	Effexor	Venlafaxine	Anti- depressant
003690	0.2%	TEMAZEPAM 30MG CAPSULE	Restoril	Temazepam	Sleep aid
003694	0.2%	HALCION 0.25MG TABLET	Halcion	Triazolam	Sleep aid
004205	0.2%	HYDROCODONE/APAP 7.5/500 TB	Vicodin	Hydrocodone	Pain medication Class III
004655	0.2%	METHOCARBAMOL 750MG TABLET	Robaxin	Methocarbamol	Muscle relaxant
008349	0.2%	MOTRIN 600MG TABLET	Motrin	Ibuprofen	NSAID
030274	0.2%	ZANAFLEX 4MG TABLET	Zanaflex	Tizanidine HCL	Muscle relaxant
046214	0.2%	FLUOXETINE 20 MG CAPSULE	Prozac	Fluoxetine HCL 20 MG Capsule	Anti- depressant
046241	0.2%	TRAZODONE 50 MG TABLET	Desyrel	Trazodone	Anti- depressant
046242	0.2%	TRAZODONE 100 MG TABLET	Desyrel	Trazodone	Anti- depressant
003689	0.1%	TEMAZEPAM 15MG CAPSULE	Restoril	Temazepam	Sleep aid
003692	0.1%	FLURAZEPAM 30MG CAPSULE	Dalmane	Flurazepam	Sleep aid
003774	0.1%	ALPRAZOLAM 0.5MG TABLET	Xanax	Alprazolam	Anti-anxiety
004169	0.1%	TYLENOL W/CODEINE #4 TABLET	Tylenol w/Codeine	Acetam.and codeine	Pain reliever/fever reducer
008358	0.1%	ANAPROX DS 550MG TABLET	Aleve	Naproxen	NSAID
016575	0.1%	RELAFEN 750MG TABLET	Relafen	Nabumetone	NSAID
021414	0.1%	NEURONTIN 300MG CAPSULE	Neurontin	Gabapentin	Anti-seizure
030107	0.1%	PREVACID 30 MG CAPSULE DR	Prevacid	Lansoprazole SR	PPI/anti-acid
041285	0.1%	CELEBREX 100MG CAPSULE	Celebrex	Celecoxib	NSAID
046213	0.1%	FLUOXETINE HCL 10 MG CAPSULE	Prozac	Fluoxetine 10 MG Capsule	Anti- depressant
046229	0.1%	ZOLOFT 100 MG TABLET	Zoloft	Sertraline	Anti- depressant
046237	0.1%	WELLBUTRIN 100 MG TABLET	Wellbutrin	Bupropion HCL 100 MG Tablet	Anti- depressant

049798	0.1%	BEXTRA 20 MG TABLET	Bextra	Valdecoxib	Cox-II inhibitor
97.8%		Top 50 as percent of all repackaged paid amounts			

Repackaged Drugs: Top 50 Drugs (GCN Sequence Number) by Number of Percent of Prescriptions

GCN_S eqno	% of repack scripts	Description	Brand	Generic	Drug class
011673	15.7%	RANITIDINE 150MG TABLET	Zantac	Ranitidine	Antacid
004663	14.2%	SOMA 350MG TABLET	Soma	Carisoprodol	Muscle relaxant
008362	8.7%	NAPROSYN 500MG TABLET	Naprosyn	Naproxen	NSAID
004204	8.3%	VICODIN 5/500 TABLET	Vicodin	Hydrocodone	Pain medication Class III
023139	6.9%	ULTRAM 50MG TABLET	Ultram	Tramadol	Analgesic
008350	6.2%	MOTRIN 800MG TABLET	Motrin	Ibuprofen	NSAID
004273	6.1%	DARVOCET-N 100 TABLET	Darvocet-N	Acetam. & Propox.	Pain medication Class IV
004207	3.4%	VICODIN ES TABLET	Vicodin	Hydrocodone	Pain medication Class III
004681	2.5%	FLEXERIL 10MG TABLET	Flexeril	Cyclobenzaprine	Muscle relaxant
004165	2.0%	TYLENOL W/CODEINE #3 TABLET	Tylenol w/Codeine	Acetam. & Codeine	Pain reliever/fever reducer
008374	1.7%	VOLTAREN 75MG TABLET EC	Voltaren	Diclofenac	NSAID
008361	1.5%	NAPROSYN 375MG TABLET	Naprosyn	Naproxen	NSAID
008371	1.4%	PIROXICAM 20MG CAPSULE	Feldene	Piroxicam	NSAID
016899	1.3%	HYDROCODONE/APAP 10/650 TAB	Vicodin	Hydrocodone	Pain medication Class III
030623	1.3%	NORCO 10/325 TABLET	Vicodin	Hydrocodone	Pain medication Class III
009043	1.0%	CEPHALEXIN 500MG CAPSULE	Keflex	Cephalosporins	Antibiotic
020175	0.8%	LODINE 400MG TABLET	Lodine	Etodolac	NSAID
027368	0.8%	LODINE 500MG TABLET	Lodine	Etodolac	NSAID
041286	0.7%	CELEBREX 200MG CAPSULE	Celebrex	Celecoxib	NSAID
008373	0.5%	VOLTAREN 50MG TABLET EC	Voltaren	Diclofenac	NSAID
016574	0.4%	RELAFEN 500MG TABLET	Relafen	Nabumetone	NSAID
017204	0.4%	DAYPRO 600MG CAPLET	Daypro	Oxaprozin	NSAID
019188	0.4%	AMBIEN 10MG TABLET	Ambien	Zolpidem	Sedative/hypnotics

042635	0.3%	VIOXX 25MG TABLET	Vioxx		Cox II inhibitor
030274	0.2%	ZANAFLEX 4MG TABLET	Zanaflex	Tizanidine HCL	Muscle relaxant
041285	0.2%	CELEBREX 100MG CAPSULE	Celebrex	Celecoxib	NSAID
049798	0.2%	BEXTRA 20 MG TABLET	Bextra	Valdecoxib	Cox-II inhibitor
004664	0.1%	SKELAXIN 400MG TABLET	Skelaxin	Metaxalone	Muscle relaxant
021414	0.1%	NEURONTIN 300MG CAPSULE	Neurontin	Gabapentin	Anti-seizure
026439	0.1%	HYDROCODONE/APAP 10/500 TAB	Vicodin	Hydrocodone	Pain medication Class III
030107	0.1%	PREVACID 30 MG CAPSULE DR	Prevacid	Lansoprazole SR	PPI/anti-acid
048456	0.1%	ULTRACET TABLET	Ultracet	Tramadol	Opiate
050712	0.1%	LEXAPRO 10 MG TABLET	Lexapro	Escitalopram oxalate	Anti-depressant
051112	0.1%	SKELAXIN 800 MG TABLET	Skelaxin	Metaxalone	Muscle relaxant
019187	0.0%	AMBIEN 5MG TABLET	Ambien	Zolpidem	Sedative/hypnotics
024506	0.0%	OXYCONTIN 40MG TABLET SA	Oxycontin	Oxycodone	Opiate
025702	0.0%	OXYCONTIN 80MG TABLET SA	Oxycontin	Oxycodone	
027462	0.0%	PROTONIX 40 MG TABLET EC	Protonix	Pantoprazole	PPI/anti-acid
029156	0.0%	MOBIC 7.5 MG TABLET	Mobic	Meloxicam	NSAID
029837	0.0%	TOPAMAX 25 MG TABLET	Topomax	Topiramate	Anti-convulsant
033530	0.0%	PRILOSEC 20 MG CAPSULE DR	Prilosec	Omeprazole 20 MG CapsuleDR	Antacid
041805	0.0%	NEURONTIN 600 MG TABLET	Neurontin	Gabapentin	Anti-seizure
041806	0.0%	NEURONTIN 600 MG TABLET	Neurontin	Gabapentin	Anti-seizure
043256	0.0%	LIDODERM 5% PATCH			
044758	0.0%	VIOXX 50 MG TABLET	Vioxx		Cox II inhibitor
046228	0.0%	ZOLOFT 50 MG TABLET	Zoloft	Sertraline	Anti-depressant
046229	0.0%	ZOLOFT 100 MG TABLET	Zoloft	Sertraline	Anti-depressant
046404	0.0%	EFFEXOR XR 75 MG CAPSULE SA	Effexor	Venlafaxine	Anti-depressant
047526	0.0%	NEXIUM 40 MG CAPSULE	Nexium	Esomeprazole magnesium	Antacid
049795	0.0%	BEXTRA 10 MG TABLET	Bextra	Valdecoxib	Cox-II inhibitor

87.8% Top 50 as percent of all repackaged prescriptions

Pharmacy: Top 50 Drugs (GCN Sequence Number) by Paid Amounts

GCN_S eqno	% of Pharm \$	Description	Brand	Generic	Drug class
041286	7.4%	CELEBREX 200MG CAPSULE	Celebrex	Celecoxib	NSAID
043256	5.4%	LIDODERM 5% PATCH			
042635	4.4%	VIOXX 25MG TABLET	Vioxx		Cox II inhibitor
030623	3.9%	NORCO 10/325 TABLET	Vicodin	Hydrocodone	Pain medication Class III
049798	3.7%	BEXTRA 20 MG TABLET	Bextra	Valdecoxib	Cox-II inhibitor
021414	3.0%	NEURONTIN 300MG CAPSULE	Neurontin	Gabapentin	Anti-seizure
019188	2.9%	AMBIEN 10MG TABLET	Ambien	Zolpidem	Sedative/hypno tics
048456	1.9%	ULTRACET TABLET	Ultracet	Tramadol	Opiate
004204	1.8%	VICODIN 5/500 TABLET	Vicodin	Hydrocodone	Pain medication Class III
004663	1.8%	SOMA 350MG TABLET	Soma	Carisoprodol	Muscle relaxant
024506	1.8%	OXYCONTIN 40MG TABLET SA	Oxycontin	Oxycodone	Opiate
051112	1.7%	SKELAXIN 800 MG TABLET	Skelaxin	Metaxalone	Muscle relaxant
041805	1.6%	NEURONTIN 600 MG TABLET	Neurontin	Gabapentin	Anti-seizure
025702	1.5%	OXYCONTIN 80MG TABLET SA	Oxycontin	Oxycodone	
049795	1.5%	BEXTRA 10 MG TABLET	BEXTRA	Valdecoxib	Cox-II inhibitor
030107	1.1%	PREVACID 30 MG CAPSULE DR	Prevacid	Lansoprazole SR	PPI/anti-acid
024505	1.0%	OXYCONTIN 20MG TABLET SA	Oxycontin	Oxycodone	Opiate
004207	0.9%	VICODIN ES TABLET	Vicodin	Hydrocodone	Pain medication Class III
004273	0.8%	DARVOCET-N 100 TABLET	Darvocet-N	Acetam. & propox.	Pain medication Class IV
015881	0.8%	DURAGESIC 50MCG/HR PATCH	Duragesic	Fentanyl topical	Narcotic analgesics
015883	0.8%	DURAGESIC 100MCG/HR PATCH	Duragesic	Fentanyl topical	Narcotic analgesics
023139	0.8%	ULTRAM 50MG TABLET	Ultram	Tramadol	Analgesic
033530	0.8%	PRILOSEC 20 MG CAPSULE DR	Prilosec	Omeprazole 20 MG Capsule DR	Antacid
044758	0.8%	VIOXX 50 MG TABLET	Vioxx		Cox II inhibitor
004681	0.7%	FLEXERIL 10MG TABLET	Flexeril	Cyclobenzaprine	Muscle relaxant
029837	0.7%	TOPAMAX 25 MG	Topomax	Topiramate	Anti-convulsant

		TABLET			
030274	0.7%	ZANAFLEX 4MG TABLET	Zanaflex	Tizanidine HCL	Muscle relaxant
041806	0.7%	NEURONTIN 800 MG TABLET	Neurontin	Gabapentin	Anti-seizure
046228	0.7%	ZOLOFT 50 MG TABLET	Zoloft	Sertraline	Anti-depressant
008350	0.6%	MOTRIN 800MG TABLET	Motrin	Ibuprofen	NSAID
019187	0.6%	AMBIEN 5MG TABLET	Ambien	Zolpidem	Sedative/hypnotics
029156	0.6%	MOBIC 7.5 MG TABLET	Mobic	Meloxicam	NSAID
046229	0.6%	ZOLOFT 100 MG TABLET	Zoloft	Sertraline	Anti-depressant
046404	0.6%	EFFEXOR XR 75 MG CAPSULE SA	Effexor	Venlafaxine	Anti-depressant
047526	0.6%	NEXIUM 40 MG CAPSULE	Nexium	Esomeprazole magnesium	Antacid
050712	0.6%	LEXAPRO 10 MG TABLET	Lexapro	Escitalopram oxalate	Anti-depressant
004664	0.5%	SKELAXIN 400MG TABLET	Skelaxin	Metaxalone	Muscle relaxant
008362	0.5%	NAPROSYN 500MG TABLET	Naprosyn	Naproxen	NSAID
009043	0.5%	CEPHALEXIN 500MG CAPSULE	Keflex	Cephalosporins	Antibiotic
013724	0.5%	DIFLUCAN 200MG TABLET	Diflucan	Fluconazole	Antifungal
015882	0.5%	DURAGESIC 75MCG/HR PATCH	Duragesic	Fentanyl topical	Narcotic analgesics
022479	0.5%	IMITREX 50MG TABLET	Imitrex	Sumatriptan	Migraine
027462	0.5%	PROTONIX 40 MG TABLET EC	Protonix	Pantoprazole	PPI/anti-acid
041285	0.5%	CELEBREX 100MG CAPSULE	Celebrex	Celecoxib	NSAID
046405	0.5%	EFFEXOR XR 150 MG CAPSULE SA	Effexor	Venlafaxine	Anti-depressant
047478	0.5%	FLEXERIL 5 MG TABLET	Flexeril	Cyclobenzaprine	Muscle relaxant
021415	0.4%	NEURONTIN 400MG CAPSULE	Neurontin	Gabapentin	Anti-seizure
026170	0.4%	TOPAMAX 100 MG TABLET	Topomax	Topiramate	Anti-convulsant
029157	0.4%	MOBIC 15 MG TABLET	Mobic	Meloxicam	NSAID
029928	0.4%	LEVAQUIN 500MG TABLET	Levaquin	Levofloxacin	Anti-bacterial

66.4% Top 50 as percent of all pharmacy paid amounts

Pharmacy: Top 50 Drugs (GCN Sequence Number) by Prescriptions Written

GCN_S eqno	% of Pharm scripts	Description	Brand	Generic	Drug class	Pct * 1999	rank 99 *
004204	11.3%	VICODIN 5/500 TABLET	Vicodin	Hydrocodone	Pain, Class III	10.2%	1
030623	4.3%	NORCO 10/325 TABLET	Vicodin	Hydrocodone	Pain, Class III	0.9%	20
004663	4.1%	SOMA 350MG TABLET	Soma	Carisoprodol	Muscle relaxant	4.9%	2
004207	3.9%	VICODIN ES TABLET	Vicodin	Hydrocodone	Pain, Class III	4.1%	4
041286	3.8%	CELEBREX 200MG CAPSULE	Celebrex	Celecoxib	NSAID	1.3%	12
004273	3.3%	DARVOCET-N 100 TABLET	DarvocetN	Acetam. & Propoxyp	Pain, Class IV	4.8%	3
008350	3.2%	MOTRIN 800MG TABLET	Motrin	Ibuprofen	NSAID	3.2%	6
042635	2.8%	VIOXX 25MG TABLET	Vioxx		Cox II inhibitor	0.3%	61
004681	2.4%	FLEXERIL 10MG TABLET	Flexeril	Cyclobenzaprine	Muscle relaxant	3.0%	7
008362	2.3%	NAPROSYN 500MG TABLET	Naprosyn	Naproxen	NSAID	1.9%	9
049798	2.1%	BEXTRA 20 MG TABLET	Bextra	Valdecoxib	Cox-II inhibitor	.	.
019188	2.0%	AMBIEN 10MG TABLET	Ambien	Zolpidem	Sleep aid	1.2%	13
023139	1.9%	ULTRAM 50MG TABLET	Ultram	Tramadol	Analgesic	4.0%	5
008349	1.8%	MOTRIN 600MG TABLET	Motrin	Ibuprofen	NSAID	1.8%	10
048456	1.7%	ULTRACET TABLET	Ultracet	Tramadol	Opiate	.	.
009043	1.6%	CEPHALEXIN 500MG CAPSULE	Keflex	Cephalosporins	Antibiotic	0.7%	25
043256	1.5%	LIDODERM 5% PATCH				.	.
004165	1.4%	TYLENOL W/CODEINE #3 TABLET	Tylenol/cod	Codeine	Narcotic-analgesic	2.4%	8
021414	1.4%	NEURONTIN 300MG CAPSULE	Neurontin	Gabapentin	Anti-seizure	1.1%	15
051112	0.9%	SKELAXIN 800 MG TABLET	Skelaxin	Metaxalone	Muscle relaxant	.	.
011673	0.8%	RANITIDINE 150MG TABLET	Zantac	Ranitidine	Antacid	0.5%	38
049795	0.8%	BEXTRA 10 MG TABLET	Bextra	Valdecoxib	Cox-II inhibitor	.	.
003768	0.6%	DIAZEPAM 5MG TABLET	Valium	Diazepam	Anti-anxiety	0.8%	23
004205	0.6%	HYDROCODONE/APAP 7.5/500 TB	Vicodin	Hydrocodone	Pain, Class III	1.2%	14
026439	0.6%	HYDROCODONE/APAP 10/500 TAB	Vicodin	Hydrocodone	Pain, Class III	0.7%	24
030274	0.6%	ZANAFLEX 4MG TABLET	Zanaflex	Tizanidine HCL	Muscle relaxant	0.2%	81
046046	0.6%	ELAVIL 25 MG TABLET	Elavil	Amitriptyline HCL 25 MG Tab	Anti-depressant	.	.
047478	0.5%	FLEXERIL 5 MG TABLET	Flexeril	Cyclobenzaprine	Muscle relaxant	.	.

003766	0.4%	DIAZEPAM 10MG TABLET	Diastat	Diazepam	Anti-anxiety	0.7%	27
003774	0.4%	ALPRAZOLAM 0.5MG TABLET	Xanax	Alprazolam	Anti-anxiety	0.4%	39
008374	0.4%	VOLTAREN 75MG TABLET EC	Voltaren	Diclofenac	NSAID	0.6%	29
016574	0.4%	RELAFEN 500MG TABLET	Relafen	Nabumetone	NSAID	1.0%	16
016899	0.4%	HYDROCODONE/APAP 10/650 TAB	Vicodin	Hydrocodone	Pain, Class III	1.0%	17
019187	0.4%	AMBIEN 5MG TABLET	Ambien	Zolpidem	Sleep aid	0.3%	57
021413	0.4%	NEURONTIN 100MG CAPSULE	Neurontin	Gabapentin	Anti-seizure	0.3%	59
030107	0.4%	PREVACID 30 MG CAPSULE DR	Prevacid	Lansoprazole SR	PPI/anti-acid	.	.
041805	0.4%	NEURONTIN 600 MG TABLET	Neurontin	gabapentin	Anti-seizure	.	.
044758	0.4%	VIOXX 50 MG TABLET	Vioxx		Cox II inhibitor	.	.
046214	0.4%	FLUOXETINE 20 MG CAPSULE	Prozac	FLUOXETINE HCL 20 MG CAPSULE	Anti-depressant	.	.
046228	0.4%	ZOLOFT 50 MG TABLET	Zoloft	Sertraline	Anti-depressant	.	.
046241	0.4%	TRAZODONE 50 MG TABLET	Desyrel	Trazodone	Anti-depressant	.	.
047431	0.4%	HYDROCODONE- APAP 7.5/325 TB	Norco 7.5/325 Tablet	Anexsia 7.5/325 MG Tablet		.	.
050712	0.4%	LEXAPRO 10 MG TABLET	Lexapro	Escitalopram oxalate	Anti-depressant	.	.
003758	0.3%	ATIVAN 1MG TABLET	Ativan	Lorazepam	Relieve anxiety	0.4%	51
003773	0.3%	ALPRAZOLAM 0.25MG TABLET	Xanax	Alprazolam	Anti-anxiety	0.3%	66
004655	0.3%	METHOCARBAMOL 750MG TAB	Robaxin	Methocarbamol	Muscle relaxant	0.8%	22
004664	0.3%	SKELAXIN 400MG TABLET	Skelaxin	Metaxalone	Muscle relaxant	0.5%	35
029837	0.3%	TOPAMAX 25 MG TABLET	Topomax	Topiramate	Anti-convulsant	.	.
033530	0.3%	PRILOSEC 20 MG CAPSULE DR	PriLOSEC	Omeprazole 20 MG CapsuleDR	Antacid	.	.
041285	0.3%	CELEBREX 100MG CAPSULE	Celebrex	Celecoxib	NSAID	0.7%	28
70.9%		Top 50 as percent of all pharmacy prescriptions					

* In the study done for CHSWC, published in 2000, the authors estimated the distribution of the top pharmacy-dispensed drugs. Those data, both percent and rank are presented here for comparison purposes. There was considerable change in the distribution of drugs just in the 5 years between data sets for these two studies.

Appendix 2—Data Descriptions

ICIS Description

Data on pharmacy transaction in California Workers' compensation system including:

- Drug description
- NDC
- Units dispensed
- Billed amount
- Paid amount
- Service date

were compiled from the Industry Claim Information System (ICIS) maintained by the California Workers' Compensation Institute (CWCI).¹³ Nine national or regional (west coast) workers' compensation insurers, representing over 75 percent of the total insurance premium written in the California workers' compensation system, as well as several large self-insured employers, submitted data for the ICIS database. The ICIS data used in this study were comprised of open and closed claims with pharmacy benefit payments between January 1, 2002, and June 30, 2004, with all payments made for service dates through June 30, 2004. These claims are representative of the broad range of policies (industry type and premium/payroll size) and claim characteristics (injury type, demographics) found in the overall population of California workers' compensation injuries or claims. This study used over 1.3 million prescriptions reflecting over \$84 million in payments.

A random sample of all submitted prescriptions was extracted from the CWCI/ICIS database for the years January 1, 2002 to June 31, 2004. The sample included 1,470,071 scripts paid by insurers during this period. The insurers sampled were approximately 70% of the insured market.

Of the sample, 10,141 records had missing National Drug Codes (NDCs). They were excluded because information could not be attached to identify the drug prescribed. Of the remaining 1,459,930 cases, 159,259 did not match a current NDC. Of these, 21,899 could be matched to a prior NDC (using the data element PNDC in the First Data Bank file). This left 1,322,570 records.

4,397 records were deleted because no units.

84,191 records were dropped because they were over-the-counter transactions. Over-the-counter paid amounts were 1.1% of the sample's paid amounts.

All prescriptions for one specific drug, Botox, were dropped because the unit values were often incorrect. There were only 31 records, one of which was a repackaged case. The price on the repackaged case was only marginally higher than the others.

This left a working file of 1,233,951.

Of these, 17,767 or 1.4% had paid amounts of \$0. These were eliminated as non-reimbursed.

¹³ ICIS is a proprietary database maintained by the California Workers' Compensation Institute (CWCI) that contains detailed information, including employer and employee characteristics, medical-service information, and benefit-cost and other administrative-cost information on over 2.5 million workplace injuries.

In addition, 2,177 cases that were listed as “durable medical equipment” were dropped.

Finally, one case with an erroneous amount paid value (AMTPD=9999.99) was dropped.

The final sample size was 1,214,000 prescriptions.

First Data Bank (FDB)

First Data Bank (FDB) is one of two primary sources for pricing information on the full range of prescriptions drugs, durable medical equipment, and over-the-counter products. FDB maintains data on every NDC and includes, among other, the following data:

- Drug description
- NDC
- GCN-Sequence Number (identifies therapeutically equivalent drugs)
- Brand/Generic indicator
- Repackage indicator
- Prices for all service dates and pricing regimes (FUL, AWP, etc.)

MediCal Pricing

MediCal makes available on the Internet the pricing standards for every drug (NDC) covered by MediCal. DWC recreates these data on their web site. The data include the FUL/MAIC price, if available and the “no-substitution” price.

Appendix 3: BUSINESS AND PROFESSIONS CODE
SECTION 4170-4175 [covering physician dispensing]

4170. (a) No prescriber shall dispense drugs or dangerous devices to patients in his or her office or place of practice unless all of the following conditions are met:

(1) The dangerous drugs or dangerous devices are dispensed to the prescriber's own patient, and the drugs or dangerous devices are not furnished by a nurse or physician attendant.

(2) The dangerous drugs or dangerous devices are necessary in the treatment of the condition for which the prescriber is attending the patient.

(3) The prescriber does not keep a pharmacy, open shop, or drugstore, advertised or otherwise, for the retailing of dangerous drugs, dangerous devices, or poisons.

(4) The prescriber fulfills all of the labeling requirements imposed upon pharmacists by Section 4076, all of the recordkeeping requirements of this chapter, and all of the packaging requirements of good pharmaceutical practice, including the use of childproof containers.

(5) The prescriber does not use a dispensing device unless he or she personally owns the device and the contents of the device, and personally dispenses the dangerous drugs or dangerous devices to the patient packaged, labeled, and recorded in accordance with paragraph

(4).

(6) The prescriber, prior to dispensing, offers to give a written prescription to the patient that the patient may elect to have filled by the prescriber or by any pharmacy.

(7) The prescriber provides the patient with written disclosure that the patient has a choice between obtaining the prescription from the dispensing prescriber or obtaining the prescription at a pharmacy of the patient's choice.

(8) A certified nurse-midwife who functions pursuant to a standardized procedure or protocol described in Section 2746.51, a nurse practitioner who functions pursuant to a standardized procedure described in Section 2836.1, or protocol, a physician assistant who functions pursuant to Section 3502.1, or a naturopathic doctor who functions pursuant to Section 3640.5, may hand to a patient of the supervising physician and surgeon a properly labeled prescription drug prepackaged by a physician and surgeon, a manufacturer as defined in this chapter, or a pharmacist.

(b) The Medical Board of California, the State Board of Optometry, the Bureau of Naturopathic Medicine, the Dental Board of California, the Osteopathic Medical Board of California, the Board of Registered Nursing, the Veterinary Medical Board, and the Physician Assistant Committee shall have authority with the California State Board of Pharmacy to ensure compliance with this section, and those boards are specifically charged with the enforcement of this chapter with respect to their respective licensees.

(c) "Prescriber," as used in this section, means a person, who holds a physician's and surgeon's certificate, a license to practice optometry, a license to practice naturopathic medicine, a license to practice dentistry, a license to practice veterinary medicine, or a certificate to practice podiatry, and who is duly registered by the Medical Board of California, the State Board of Optometry, the Bureau of Naturopathic Medicine, the Dental Board of California, the Veterinary Medical Board, or the Board of Osteopathic Examiners of this state.

4170.5. (a) Veterinarians in a veterinary teaching hospital operated by an accredited veterinary medical school may dispense and administer dangerous drugs and devices and controlled substances from a common stock.

(b) The veterinary teaching hospital shall designate a pharmacist to be responsible for ordering the drugs for the common stock and the designated

pharmacist-in-charge shall be professionally responsible to insure that inventories, security procedures, training, protocol development, recordkeeping, packaging, labeling, and dispensing occur in a manner that is consistent with the promotion and protection of the health and safety of the public.

(c) The veterinary teaching hospital's pharmacist-in-charge shall develop policies, procedures, and guidelines that recognize the unique relationship between the institution's pharmacists and veterinarians in the control, management, dispensation, and administration of drugs.

(d) The board may inspect a veterinary teaching hospital dispensing or administering drugs pursuant to this section.

4171. (a) Section 4170 shall not prohibit the furnishing of a limited quantity of samples by a prescriber, if the prescriber dispenses the samples to the patient in the package provided by the manufacturer, no charge is made to the patient therefor, and an appropriate record is entered in the patient's chart.

(b) Section 4170 shall not apply to clinics, as defined in subdivision (a) of Section 1204 or subdivision (b) or (c) of Section 1206 of the Health and Safety Code, to programs licensed pursuant to Sections 11876, 11877, and 11877.5 of the Health and Safety Code, or to a prescriber dispensing parenteral chemotherapeutic agents, biologicals, or delivery systems used in the treatment of cancer.

4172. A prescriber who dispenses drugs pursuant to Section 4170 shall store all drugs to be dispensed in an area that is secure. The Medical Board of California shall, by regulation, define the term "secure" for purposes of this section.

4173. This chapter does not prevent the dispensing of drugs or devices by registered nurses functioning pursuant to Section 2725.1.

4174. Notwithstanding any other provision of law, a pharmacist may dispense drugs or devices upon the drug order of a nurse practitioner functioning pursuant to Section 2836.1 or a certified nurse-midwife functioning pursuant to Section 2746.51, a drug order of a physician assistant functioning pursuant to Section 3502.1 or a naturopathic doctor functioning pursuant to Section 3640.5, or the order of a pharmacist acting under Section 4052.

4175. (a) The California State Board of Pharmacy shall promptly forward to the appropriate licensing entity, including the Medical Board of California, the Veterinary Medical Board, the Dental Board of California, the State Board of Optometry, the Osteopathic Medical Board of California, the Board of Registered Nursing, the Bureau of Naturopathic Medicine, or the Physician Assistant Committee, all complaints received related to dangerous drugs or dangerous devices dispensed by a prescriber, certified nurse-midwife, nurse practitioner, naturopathic doctor, or physician assistant pursuant to Section 4170.

(b) All complaints involving serious bodily injury due to dangerous drugs or dangerous devices dispensed by prescribers, certified nurse-midwives, nurse practitioners, naturopathic doctors, or physician assistants pursuant to Section 4170 shall be handled by the Medical Board of California, the Dental Board of California, the State Board of Optometry, the Osteopathic Medical Board of California, the Bureau of Naturopathic Medicine, the Board of Registered Nursing, the Veterinary Medical Board, or the Physician Assistant Committee as a case of greatest potential harm to a patient.

Appendix 4: Court case supporting physician dispensing

*99 Cal. App. 4th 247, *; 120 Cal. Rptr. 2d 858, **;
2002 Cal. App. LEXIS 4225, ***; 67 Cal. Comp. Cas 770*

PARK MEDICAL PHARMACY, Plaintiff and Appellant, v. SAN DIEGO ORTHOPEDIC ASSOCIATES
MEDICAL GROUP, INC., Defendant and Respondent.

No. **D038051**.

COURT OF APPEAL OF CALIFORNIA, FOURTH APPELLATE DISTRICT, DIVISION ONE

99 Cal. App. 4th 247; 120 Cal. Rptr. 2d 858; 2002 Cal. App. LEXIS 4225; 67 Cal. Comp. Cas
770; 2002 Cal. Daily Op. Service 5171; 2002 Daily Journal DAR 6542

June 11, 2002, Decided
June 11, 2002, Filed

PRIOR HISTORY: [***1] APPEAL from a judgment of the Superior Court of San Diego
County. Super. Ct. No. GIC754386. S. Charles Wickersham, Judge.

DISPOSITION: The judgment is affirmed.

CASE SUMMARY:

PROCEDURAL POSTURE: Plaintiff pharmacy sued defendant medical group for dispensing
drugs in violation of the Cal. Bus. & Prof. Code § 4170 and for unlawfully operating a retail
pharmacy. The medical group moved the summary judgment, which was granted in favor of the
medical group by the Superior Court of San Diego County (California). The pharmacy appealed.

OVERVIEW: The physicians of the medical group individually dispensed drugs on a for-profit
basis to their worker's compensation patients after informing the patients that they could get a
prescription that could be filled anywhere. The pharmacy also alleged that the medical group
interfered with its business by diverting patients away from the pharmacy and included causes of
action for violations of unfair business practices. The appellate court found that: (1) under the
provisions of Cal. Bus. & Prof. Code § 4170 the medical group was entitled to dispense drugs on
a for-profit basis to their patients as a part of their treatment, (2) maintaining a separate room
to hold the drugs was not a "pharmacy" because the drugs were not for sale to the public, and
(3) the legislative intent was to prohibit physicians from having a store where they sold drugs to
the general public, and to limit physicians to dispensing drugs to their own patients for the
condition for which the patient was seeking treatment.

OUTCOME: The judgment of the superior court was affirmed.

Appendix 5

Title 8, California Code of Regulations Chapter 4.5, Division of Workers' Compensation Subchapter 1 - Administrative Director – Administrative Rules

Article 5.3

Section 9789.40

(a) The maximum reasonable fee for pharmaceuticals and pharmacy services rendered after January 1, 2004 is 100% of the fee reimbursement prescribed in the relevant Medi-Cal payment system, including the Medi-Cal professional fee for dispensing. Medi-Cal rates will be made available on the Division of Workers' Compensation's Internet Website (http://www.dir.ca.gov/DWC/dwc_home_page.htm) or upon request to the Administrative Director at:

DIVISION OF WORKERS' COMPENSATION
(ATTENTION: OMFS - PHARMACY)
P.O. BOX 420603
SAN FRANCISCO, CA 94142.

(b) For a pharmacy service or drug that is not covered by a Medi-Cal payment system, the maximum reasonable fee paid shall not exceed the fee specified in the OMFS 2003, determined in accordance with this subdivision, plus \$7.25 professional fee for dispensing or \$8.00 if the patient is in a skilled nursing facility or an intermediate care facility.

(1) If the National Drug Code for the drug product as dispensed is not in the Medi-Cal database, and the National Drug Code for the underlying drug product from the original labeler appears in the Medi-Cal database, then the maximum fee shall be the reimbursement allowed pursuant to section 14105.45 of the Welfare and Institutions Code using the National Drug Code for the underlying drug product from the original labeler as it appears in the Medi-Cal database, calculated on a per unit basis. The maximum fee shall include only a single professional fee for dispensing for each dispensing.

(2) If the National Drug Code for the drug product as dispensed is not in the Medi-Cal database and the National Drug Code for the underlying drug product from the original labeler is not in the Medi-Cal database, then the reimbursement shall be 83 percent of the average wholesale price of the lowest priced therapeutically equivalent drug, calculated on a per unit basis.

(c) For purposes of this section:

(1) "therapeutically equivalent drugs" means drugs that have been assigned the same Therapeutic Equivalent Code starting with the letter "A" in the Food and Drug Administration's publication "Approved Drug Products with Therapeutic Equivalence Evaluations" ("Orange Book"). The Orange Book may be accessed through the Food and Drug Administration's website: <http://www.fda.gov/cder/orange/default.htm>;

(2) “National Drug Code for the underlying drug product from the original labeler” means the National Drug Code of the drug product actually utilized by the repackager in producing the repackaged product.

(d) The changes made to this Section in 2006 shall be applicable to all pharmaceuticals dispensed or provided on or after December 1, 2006.

Authority: Sections 133, 4603.5, 5307.1 and 5307.3, Labor Code. Reference: Sections 4600, 4603.2 and 5307.1, Labor Code.