REPORT OF
THE DEPARTMENT OF MEDICAL ASSISTANCE SERVICES

STUDY OF THE EFFECTS ON MEDICAID COSTS AND SERVICES OF CHRONIC PAIN AND PAIN MANAGEMENT

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

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TO: The Honorable George Allen

and

The General Assembly of Virginia

This report contained herein is pursuant to Senate Joint Resolution 368 passed by the 1997 General Assembly.

The report contains the conclusions and recommendations of the study as presented to the Joint Subcommittee Studying the Commonwealth's Current Laws and Policies Related to Chronic, Acute, and Cancer Pain Management.

Respectfully submitted,

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Study of the Effects on Medicaid Costs and Services of Chronic Pain

Survey of Health Care Providers on Attitudes and Perceptions of Pain

Conducted for
The Department of Medical Assistance Services
Commonwealth of Virginia

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Table of Contents

Preface		i
Acknowledgments		iii
Executive Summary		1
Chapter 1:	Authority for the Study Literature Review	6
Chapter 2:	Methodology and Analysis of Medicaid Claims Data on Chronic Pain Management Methodology Analysis Limitations of Analysis Discussion	15
Chapter 3:	Methodology and Analysis of the Provider Survey Methodology Analysis Discussion	23
Chapter 4:	Recommendations	29
Chapter 5:	Concluding Remarks	31
Appendix A:	Senate Joint Resolution No. 368	32
Appendix B:	Tables and Charts Referenced in Report Text	33
Appendix C:	Bibliography and Selected References	35
Appendix D:	Practice Guidelines	40
Appendix E:	Survey Instrument and Related Tables	41
Appendix F:	Notes and References from Interviews with Members of the Virginia Chiropractic Association	54
Appendix G:	Limitations of the Analysis of the Medicaid Claims Data	57

Preface

In accordance with Senate Joint Resolution No. 368 requesting the Department of Medical Assistance Services (DMAS) to conduct a study to determine how pain resulting from illness or injury affects Medicaid costs and services, DMAS contracted with the Department of Health Evaluation Sciences at the University of Virginia School of Medicine (DHES) to develop and conduct an in-depth study.

A group of researchers, including an economist, a clinician specializing in pain management, a health policy specialist, and a research methodologist was assembled to design and complete the SJR 368 study. The study group was comprised of the following people:

Douglas Wagner, Ph.D., Department of Health Evaluation Sciences, Health Economist
Donald Manning, M.D., Ph.D., Department of Anaesthesiology, Clinician
Carolyn Engelhard, M.P.A., Department of Health Evaluation Sciences and the Virginia Health Policy Center, Policy Analyst
Wendy Novicoff, M.Ed., Department of Health Evaluation Sciences, Research Methodologist

Description of the DHES Study Team

The Department of Medical Assistance Services contracted with the Department of Health Evaluation Sciences, located at the University of Virginia School of Medicine, to conduct the study. DHES is devoted to the discovery and development of new approaches to health and disease description, prognosis, clinical and genetic risk assessment, information transfer, biostatistical and epidemiological research, medical decision-making, medical practice and device evaluation, and research strategies for individuals and populations. The Department's multidisciplinary efforts, involving clinicians, biostatisticians, epidemiologists, biomedical engineers and informatics specialists, enables clinicians, administrators, and others to more precisely evaluate the efficacy of existing medical care and health improvement practices and more accurately test new approaches to diagnosis and treatment of disease and to health care delivery in general. The Department consists of four divisions: Biostatistics and Epidemiology, Health Services Research and Outcomes Evaluation, Clinical Epidemiology, and Clinical Informatics.

The DHES investigators for this project included Dr. Douglas Wagner, Carolyn Engelhard, Wendy Novicoff, and Dr. Donald Manning. Dr. Wagner served as the principal investigator and was responsible for oversight of the project. Dr. Wagner is a Professor in the Department of Health Evaluation Sciences. His expertise is in health economics, and he has published extensively in the fields of risk adjustment, database management, and outcomes evaluation. He received his degrees from Washington University and Vanderbilt University.

Ms. Engelhard and Ms. Novicoff were co-investigators who were responsible for the overall implementation and coordination of the project. Ms. Novicoff also coordinated all administrative aspects of the project, including surveys, data analysis, report writing, and supervision of the research support team. Ms. Engelhard is a Health Policy Analyst at the Virginia Health Policy Center, a multi-disciplinary center devoted to the study of policy and values issues in contemporary health care. She is also a Lecturer in the Department of Health Evaluation Sciences and has written and presented extensively about the social and policy implications of the expansion of corporate managed health care delivery systems and current issues in governmentally financed health programs. She received her Master of Arts in Public Administration from the University of Virginia. Ms. Novicoff is a Research Assistant in the Department of Health Evaluation Sciences. She has received degrees from Duke University and the University of Virginia, where she is currently finishing her doctoral degree in research methodology. She has a varied background in research methodologies, evaluation methods, survey methods, and data analysis.

Dr. Manning provided clinical expertise in the area of pain management. Dr. Manning obtained a Ph.D. in molecular pharmacology from Johns Hopkins University with a post-doctoral fellowship in clinical and basic mechanisms of chronic pain. He received his M.D. from Johns Hopkins University with residency training in anesthesiology and specialty fellowship in pain management. He was co-director of chronic pain services at Johns Hopkins before moving to Virginia to join the faculty in the UVA pain management center. Most recently, he has initiated a multicenter national outcome study to address the efficacy of epidural steroid injections for acute radicular pain.

The research support team consisted of two graduate student research assistants, Randolph Atkins and Oliver Frauenfeld, who performed data entry, programming, necessary literature and information searches, and preliminary data analysis. Statistical consultation regarding sampling, weighting analyses, and modeling was provided by the Department of Health Evaluation Sciences Division of Biostatistics through Dr. Frank Harrell, Division Director.

Chapter 1 outlines the authority for the study and provides details about the literature review done on chronic pain management, chronic low back pain, and chronic headache and migraine. Chapter 2 describes the methodology and analysis of the Medicaid claims data. Chapter 3 summarizes the methodology and analysis of the provider survey. Recommendations are found in Chapter 4, and Chapter 5 offers concluding remarks.

Acknowledgments

The authors of this report gratefully acknowledge the contributions of the many people who generously gave their time, ideas, and shared their data to assist us with this study.

We are especially indebted to Anita Cordill, Policy Analyst with the Department of Medical Assistance Services, who served as Project Manager, and John Orrock, Senior Database Administrator with the Department of Medical Assistance Services, who supplied the Medicaid data files for analysis. Both of these individuals served as resources during the whole study process. In addition, we thank the Joint Subcommittee to Study the Commonwealth's Current Laws and Policies Related to Chronic, Acute, and Cancer Pain who helped us to focus on specific issues relating to pain and Medicaid costs. Their concerns and recommendations led us to include a survey of providers in order to supplement the information gleaned from the Medicaid data analysis.

We greatly appreciate the willingness of several members of the University of Virginia School of Medicine faculty to consult with us and to help us gain a better understanding of the many complex issues surrounding pain management. In particular, thanks goes to John Rowlingson, M.D., Director of the UVA Pain Management Center. In addition, other faculty from the UVA Pain Management Center and the UVA Cancer Center provided input on study design.

Finally, we thank graduate research assistants Randolph Atkins and Oliver Frauenfeld for their hard work entering and analyzing data and undergraduate student Julia Hayes for her help in coordinating the survey process.

Executive Summary

Authority for the Study

Chronic pain is a widespread problem in the population of the Commonwealth, leading to an increase in the utilization of health care services. Many studies have shown that pain management practices can shorten hospital stays, improve outcomes, and reduce physician visits. The Virginia General Assembly, through their study of pain management, determined that the use of pain management would be beneficial to the Commonwealth in reducing costs of medical assistance. Senate Joint Resolution No. 368 mandated that the Department of Medical Assistance Services (DMAS) conduct a study to determine how pain resulting from an illness or injury affects Medicaid costs and services (See Appendix A). The legislation asked DMAS to produce findings and recommendations on patterns of treatment, treatment that appeared to shorten the duration of pain, and best outcomes. The Department of Medical Assistance Services contracted with the Department of Health Evaluation Sciences at the University of Virginia to conduct the study.

A comprehensive review of the most recent fifteen years of academic literature on pain and pain management was completed using MEDLINE. It was determined through the literature search that many of the articles on chronic, non-cancer pain management focused on back pain and headache. This finding, in conjunction with the legislative language of SJR 368 that states "...80 percent of physician visits are for pain complaints, ...23 million Americans have back pain, and ...24 million Americans have debilitating headaches..." prompted the study team to focus their efforts on two broad diagnostic groups affecting Medicaid recipients: back pain and headache. In order to better understand the economic and health benefits of appropriate pain management, the study team combined information gleaned from Medicaid claims data with a survey of health care providers on pain and pain management. These quantitative and qualitative research strategies built on prior activities of the Joint Subcommittee to Study the Commonwealth's Current Laws and Policies Related to Chronic, Acute, and Cancer Pain Management in assessing the economic benefits of appropriate management of pain on various benefits programs.

Review of the Literature

The literature review showed that health care professionals have varied opinions about pain, pain education, and treatment modalities. Specific problems mentioned in the literature include:

- inadequate knowledge of analgesic pharmacology and pain therapy
- poor pain assessment
- concern about regulatory oversight
- fear of patient addiction
- concern about the side effects of analgesics
- concern about development of tolerance to analgesics

Patients often lack knowledge about pain and available treatment options. Specific problems mentioned in the literature include:

- reluctance to report pain
- reluctance to take pain medications
- inadequate educational tools

Methodology and Analysis of Medicaid Claims Data on Chronic Pain Management

The analysis of Virginia Medicaid claims data was designed to focus on two broadly defined diagnostic categories: chronic low back pain and chronic headache. Medicaid claims data from fiscal years 1995 and 1996 was obtained from DMAS for analysis. Post-1996 data were not available to the study team because of normal delays in processing claims data. No analysis was done on enrollees of Medicaid HMOs because HMO encounter data is not included in the claims database.

The goal of the legislation was to determine the effects on Medicaid costs and services of pain resulting from an illness or injury. Data studied included hospital admissions and length of stay, physician visits, pharmacy usage, and rehabilitation therapies.

The goal of this effort was to assess Virginia Medicaid costs for two diagnoses (back pain and headache), examine use of prescription drugs (including opioids), and to evaluate variations in treatment across regions and physician specialty. For the purpose of analysis, an episode of illness was defined as an initial medical care visit with a principal diagnosis for one of the two conditions under study and all Medicaid costs of medical care (including pharmaceuticals) for these patients within one year of the initial encounter.

The diagnostic screens identified 18,935 Medicaid patients with at least one medical encounter with a principal diagnosis of back pain. The 12-month cost for these patients was approximately $25.9 million including $12.95 GF. Sixteen million dollars of this amount went towards prescription drug charges with the remainder being paid for provider, hospital inpatient, and hospital outpatient services (including rehabilitation services). The overall mean cost per patient was $1,379. There was substantial and significant variations across geographic regions in total non-drug costs and total costs. Additional analyses showed that patients who received strong opioids at their initial visit consumed more resources than patients who did not. It is unclear whether these additional costs reflected more effective care or more seriously ill patients.

A total of 19,751 Medicaid patients who had at least one medical encounter for headache were identified. Overall, headache patients cost less and used fewer resources than back pain patients. The 12-month cost for headache patients was approximately $18.3 million. Expenses for prescriptions accounted for more than $13.3 million. Costs for provider, hospital inpatient, and hospital outpatient care (including rehabilitation services) totaled $5 million. There was also substantial and significant variations across geographic regions in total non-drug costs and total costs. As seen in back pain patients who received strong opioids at their first medical encounter, headache patients who received strong opioids

consumed significantly more resources than patients who did not, and again, it is impossible to determine the overall benefits, if any, of the additional costs.

It should be noted that the analyses reported are subject to limitations inherent in large-scale data sets. For example, total drug costs were most likely overestimated because it was impossible to differentiate which pharmaceuticals were prescribed to treat only the back pain or headache diagnoses followed in this study. However, despite this limitation, we did find that most patients with diagnoses of back pain or headache seemed to respond fairly promptly to treatment (because the utilization slowed or stopped), but that the care for a small group of patients is long and expensive.

Methodology and Analysis of the Provider Survey

A survey was mailed to 798 health care providers who are eligible to be Medicaid providers in the Commonwealth: 354 went to primary care providers and 444 went to pain management specialists. A total of 168 usable surveys were returned during the study period, resulting in a response rate of 21%. Restrictions on the use of mailing lists prohibited follow-up contacts normally used to raise response rates. However, this response rate is typical for other surveys on pain and pain management involving physicians (Cherkin 1995, Wolff 1991, Schwartz 1989).

Analysis was completed on the total study sample and the two subsamples of primary care providers and specialists. The two subsamples did not differ significantly in their answers to the questions, but there was substantial variation within each subsample. This supports previous studies and surveys of caregiver management of pain treatment.

The survey respondents were 82% male, nearly half were in private practice, and 75% were younger than 50 years of age. Primary care providers treated more patients overall, but a smaller percentage of their patients reported noncancer pain than in the pain specialist practices. Nearly half of the caregivers described learning about pain through clinical experience, rather than formalized training. Almost three-quarters of the study sample received continuing medical education on pain, mostly in the form of informal lectures or written materials. A majority of the respondents stated that a patient's insurance status sometimes or always affects their ability to use certain treatment modalities, especially psychiatric services and interventional procedures. In general, there was much variation in the answers to questions dealing with the prescription of opioids, especially for patients with noncancer pain.

The provider survey affirmed what was found in the literature concerning health care providers and pain management: there is little consensus about treatment modalities (as well as what type of practitioner is best to treat pain). While our survey produced a moderately low response rate, it did reflect the variation across treatment modalities and practice specialties found in other studies.

Recommendations

Recommendation: Decrease the cost of treatment for back pain and headache by closer management, on the part of DMAS and Medicaid providers, of patients with records of high utilization (more than 10 visits to a health care provider per year - See Chapter 4). DMAS is currently developing a program that would provide disease management services to Medicaid patients with chronic conditions. It is possible that chronic pain could be identified as a chronic disease to be targeted by this program.

Recommendation: Examine more closely the reasons for significant differences in utilization and cost of health services in the geographic regions of the Commonwealth.

Recommendation: More education for health care professionals about pain and available treatment options, including prescription of opioids, is needed. Educational materials based on clinical guidelines, such as guidelines developed by the American Society of Anesthesiologists, could provide standardized treatment options. In addition, SJR No. 366 (1997) called for the study of pain management curricula in the medical schools in the Commonwealth; recommendations from this study could be incorporated to supplement existing education programs for medical students.

Recommendation: More education for patients and their nonprofessional caregivers about pain and available treatment options, including prescription of opioids, is needed.

Recommendation: Existing laws and regulations governing prescription of opioids and provisions for reimbursement for pain should be examined for undue restrictions whether real or perceived.

Concluding Remarks

The Medicaid population has unique and distinguishing characteristics from the rest of the population. Medicaid recipients tend to be adult Caucasian females or children. In addition, Medicaid prescription drug formularies tend to be less restrictive than those of other insurance programs. Because of this, recommendations based on analysis done on Medicaid claims data may not be generalizable to the population at large.

However, certain patterns did emerge that might be applicable to other segments of the population. The costs of treatment for back pain and headache in the Medicaid population in Virginia are large, totaling approximately $41.4 million, including drug costs. This figure does not include indirect costs, such as loss of productivity or lost work days. With respect to utilization, while most patients with a diagnosis of back pain or headache seek medical care on 10 or fewer occasions per year, the small number of patients who have more than 10 encounters per year account for more than half of the total direct costs related to these diseases.

Studies are needed to determine whether the different perspectives and attitudes of caregivers are associated with differences in the costs and outcomes of care. Unfortunately, we could not do this with the available data.

While the providers surveyed for this study reported receiving education on pain and pain management, we were not able to assess the adequacy of this knowledge. The academic literature shows that medical societies and many providers are concerned that health care providers are not trained in how to deal with pain, especially with chronic pain. In addition, health care providers are concerned about possible patient addiction, tolerance, and side effects to certain medications, and they are also worried about strict regulations and laws surrounding the prescription of controlled substances such as narcotics. More education for health care professionals and patients about pain and available treatment options, including prescription of opioids, is needed. Clinical guidelines may help to decrease variability in provider knowledge and attitudes about pain and pain management and may help to decrease variation in treatment modalities.

Laws and regulations governing prescription of opioids and provisions for reimbursement for pain impact patterns of treatment. The low priority given to chronic pain management (as opposed to treating acute episodes), the inadequate or inappropriate provisions for reimbursement for treatment, and restrictive regulation of controlled substances may obstruct the appropriate treatment of pain. Possible reimbursement for complementary treatment options (such as chiropracty or massage therapy), based on the experience of other states, should also be examined.

Chapter 1

Authority for the Study

As set forth in Senate Joint Resolution No. 368, the Senate, with the House of Delegates concurring, mandated that the Department of Medical Assistance Services conduct a study to determine how pain resulting from illness or injury affects Medicaid costs and services (See Appendix A). As stated, "Data studied should include, but not be limited to, hospital admissions and length of stay, physician visits including specialists, pharmacy usage, and rehabilitation therapies. In conducting its study, the department shall seek the assistance of various participating providers and may design its study to cover one diagnosis or injury or a group of diagnoses or injuries. The study report should identify any patterns of treatment, treatment that appeared to shorten the duration of pain, and best outcomes." The findings and recommendations will be submitted to the Governor and the 1998 Session of the General Assembly as outlined in the legislation. The Department of Medical Assistance Services contracted with the Department of Health Evaluation Sciences at the University of Virginia to conduct the study. Study group membership is described in detail in the Preface of this document.

In setting out the terms for the study, the Virginia General Assembly researched the area of pain management. The General Assembly requested data from several sources on the economic benefits of proper management of chronic pain on benefit programs, but was unsuccessful. Since studies of chronic pain patients enrolled in pain management programs indicated that 80 percent of physician visits were for pain complaints, 23 million Americans have back pain, 24 million American have chronic headaches, and pain management can shorten hospital stays, improve outcomes, and reduce physician visits, the General Assembly determined that the use of pain management would be beneficial to the Commonwealth in reducing costs of medical assistance (see Appendix A for exact legislative language). Thus, as directed by the General Assembly, the study had to examine the effects on Medicaid costs and services of pain resulting from an illness or an injury.

In order to assure that all aspects of the charge from the General Assembly were met, and that the study was methodologically sound, the study team employed four distinct methodologies. First, a comprehensive review and analysis of the professional literature was conducted and documented. Second, Medicaid claims data from Fiscal Years 1995 and 1996 were obtained from the Department of Medical Assistance Services for the purpose of analysis. Third, a survey of selected providers who are eligible to be compensated by Medicaid was designed and implemented. Finally, several members of the Virginia Chiropractic Association were contacted for information about their society and their views on pain management.

In addition to the legislative language outlined in SJR 368, the Joint Subcommittee to Study the Commonwealth's Current Laws and Policies Related to Chronic, Acute, and Cancer Pain Management asked the study team to investigate several concerns about regulatory and

legal pressures on physicians with regards to prescription of narcotics for pain complaints and the overall perception that pain is undertreated.

The purpose of this study was to analyze the effects on Medicaid costs of pain resulting from an illness or injury. After a literature review and consultation with several interested parties, we decided to focus on the effects on Medicaid costs due to a diagnosis of chronic low back pain or headache. In addition, we performed a survey in order to look at experiences of selected providers who are eligible to treat Medicaid patients. The following broad areas and questions were addressed during the study process by the study team:

- Costs associated with a diagnosis of chronic low back pain or headache
- Health care utilization (including hospital admissions and length of stay, physician visits, pharmacy usage, and rehabilitation therapies) associated with a diagnosis of chronic low back pain or headache
- Patterns of treatment in relation to caregiver specialty, geographic region, and patient characteristics (including patterns that appear to shorten the duration of pain and best outcomes)
- Where are caregivers getting education about pain management?
- How many patients with pain complaints are seen by caregivers in the Commonwealth?
- Does insurance status of a patient affect treatment modalities for pain?
- Do regulatory or legal pressures on caregivers affect treatment of pain?

Interviews with members of the Virginia Chiropractic Association

Several members of the Virginia Chiropractic Association contacted the Joint Subcommittee and the Department of Medical Assistance Services expressing interest in the study being conducted as a result of SJR 368. Because chiropractors do not receive reimbursement through Medicaid, they would not appear in the Medicaid claims data and were thus excluded from the survey process. In the interest of supplementing the existing information on pain management, the study team interviewed three chiropractors. The summaries of their interviews can be found in Appendix F, along with pertinent correspondence, a bibliography of relevant references, and a list of states that currently provide reimbursement for chiropractic services under the Medicaid program.

Literature Review

A comprehensive review of the most recent fifteen years of academic literature on pain and pain management was completed using MEDLINE. It was determined through the literature search that many of the articles on chronic, non-cancer pain management focused on back pain and headache. This finding, in conjunction with the legislative language of SJR 368 that states "...80 percent of physician visits are for pain complaints, ...23 million Americans have back pain, and ...24 million Americans have debilitating headaches...," prompted the study team to focus their efforts on two broad diagnostic categories affecting Medicaid recipients: back pain and headache. The literature search also provided support for the provider survey, and suggested several questions that were later included on the survey instrument.

The literature search was refined to focus on terms relating to the two broad diagnoses. Since much of the academic literature examines migraines rather than simple headaches, migraine was also used as a keyword. In addition, a search was done for articles on chronic pain management in general in order to supplement the information gathered on low back pain and headache. A selected bibliography can be found in Appendix C of this document.

Chronic Pain Management

Millions of people in the United States deal with pain from chronic or acute conditions. Annually, 15% to 20% of the population suffer from acute pain, and 25% to 30% have chronic pain. These conditions can be debilitating, which can result in lowered productivity, lessened quality of life, and increased cost and use of health services (Reinking 1995). Pain management is a relatively new specialty in medicine, and there is still little consensus in either the academic literature or in practice guidelines about how pain should be treated. According to a study done in California, many patients do not receive adequate treatment for their pain. This is due to many reasons: failure to diagnose pain properly, lack of education about treatment modalities, lack of research into the effectiveness of pain treatment options, fear of addiction to narcotics, and problems with laws and regulations surrounding prescription drugs and reimbursement (Barnett 1994).

National organizations have recently focused efforts on pain management. The American Medical Association's Council on Scientific Affairs identified barriers to optimal pain management in its 1995 report *Aspects of Pain Management in Adults*, including concern about regulatory oversight. On July 17, 1997, the AMA held a media briefing on pain and pain management that reiterated these problems with effective pain management. The AMA also has policy statements regarding pain management. The American Society of Anesthesiologists recently published practice guidelines for chronic pain management. The guidelines outline a definition of chronic pain and focus on the knowledge base, skills, and range of interventions that are deemed essential to proper pain management. Other organizations, such as the American Academy of Pain Medicine, the American Pain Society,

and the American Medical Association, are in the process of producing guidelines, and several organizations, notably the National Chronic Pain Outreach Association, are helping to educate patients and providers about chronic pain and possible treatments. The U.S. Agency for Health Care Policy and Research (AHCPR) has published a series of guides on acute pain management, acute low back pain management, and cancer pain management. Up to this date, no guide on treatment of chronic pain has been published by AHCPR, but efforts are underway by several research groups to develop such a guide. Please see Appendix D for a selected listing of practice guidelines published by national organizations.

Even though the importance of proper caregiver and patient education on pain management is not in dispute, actual education efforts have had varying degrees of success and penetration (Clarke 1996, Brunier 1995, Campbell 1992, Parris 1992, Wolff 1991). Most studies in this area have concluded that more education on pain management is necessary, including education for nurses, therapists, medical students, and adjunct caregivers. In one example of a controlled experiment at the University of Washington, researchers developed and evaluated a physician education intervention to improve primary care for low back pain. This program had a significant impact on physician knowledge of treatment modalities (changes in treatment patterns were not measured), but it did not improve patient outcomes or physician attitudes towards pain patients (Cherkin 1991a, Cherkin 1991b). Several journals have published continuing medical education articles on chronic pain management (Montauk 1997, Lister 1996, Stacey 1996, Reinking 1995, Helme 1993), but these articles are not often scientifically based.

Some state governments have undertaken studies on pain management. In Virginia, the 1997 General Assembly passed SJR 366, a resolution that mandates a study of the pain management curricula in the medical schools of the Commonwealth. Results of this study will be available this fall In 1994 in California, the Governor mandated the formation of a committee to study appropriate pain management. The Summit on Effective Pain Management: Removing Impediments to Appropriate Prescribing was held as a result. This group concluded that many patients do not receive optimum treatment, especially prescription drug treatment. In order to remedy this, the Summit group recommended that the state legislature examine current laws and regulations surrounding the prescription of controlled substances. They also urged providers and payors to place more emphasis on pain management, especially in educating patients about their options. Continued efforts in this field have led to the California Pain Patient's Bill of Rights (SB 402), a bill that would increase access to narcotics for patients in severe pain. It would also require doctors to advise patients that narcotics are legally available to help relieve pain. This bill has passed through the state Senate, and is working its way through the state House. Other states, such as Oklahoma and New York, are currently working on bills that would increase treatment options for chronic pain. For example in New York, legislators are working on a bill that would require insurers to pay for visits to chiropractors.

However, several people are concerned about the freer access to narcotics that would be promoted in bills such as the California bill. Much publicity has surrounded the case of William Hurwitz, MD, a pain specialist in Virginia who is under investigation for his

prescription of opioids to his patients. In this case, Dr. Hurwitz has been accused of improper prescription practices to patients that he had not personally examined or who had histories of drug abuse or illegal drug distribution. His medical license has been suspended twice (it was recently reinstated), and his license to prescribe narcotics has remained suspended. His supporters and satisfied patients refer to him as a crusader against a system that undertreats pain. His detractors have accused him of being responsible for some of his patients' deaths.

There is some evidence for physician concern about prescription of drugs for chronic pain, especially the prescription of narcotics. A survey of physicians about their motivations for prescription practices showed that some providers do not follow guidelines for prescription of certain drugs, including narcotics (Schwartz 1989). The conclusions of this study state that the most prevalent reason for nonscientific prescription of certain drugs, including the pain medication propoxyphene, when other less expensive and possibly more effective drugs were available, was patient demand followed by intentional use of placebo effect and clinical judgment.

In 1994, the American Medical Association surveyed readers of the *Journal of the American Medical Association* (*JAMA*) to find out if physicians tend to underprescribe controlled substances to treat chronic, intractable pain because of potential sanctions on their licensure. The informal poll found that fear of disciplinary action led many physicians to state that they give lower dosages, choose other drugs, and give fewer refills than are appropriate due to the risk of investigation by state enforcement systems. Another survey in Wisconsin showed that several providers erroneously believe that prescription of opioids for chronic non-malignant pain is illegal (Rapp 1994). In response, the American Academy of Pain Medicine and the American Pain Society issued a consensus statement on the use of opioids for cases of chronic pain. The statement, which contains prescribing guidelines, comes at a time when many state legislatures, health departments, medical boards and medical societies are revising their policies about prescribing opioids for some chronic conditions.

Costs of prescription drugs associated with pain management are also a major concern for insurers, consumers, and policy makers, even though there is no scientific evidence of a relationship between cost and optimal treatment. A study on the effect of insurance status on pain medication prescriptions for cancer patients showed that Medicaid patients in Louisiana received significantly higher amounts and more expensive types of medication than patients with all other types of insurance, including private pay and Medicare (Holcombe 1993). The authors determined that insurance status did not seem to affect inpatient care (including medications), but a majority of physicians surveyed stated that insurance status did have an effect on their choices of outpatient prescription medications. The authors also expressed concern that poor individuals whose incomes exceed the level of Medicaid qualification receive less expensive, and possibly less adequate, medical care. A study done on Medicaid patients in Tennessee showed that the prior authorization requirements established by OBRA 1990 were cost-effective with regard to expenditures for nonsteroidal antiinflammatory drugs or NSAIDs (Smalley et al. 1995), but they did not examine patient outcomes. Another study showed that there are significant differences in the costs of several types of NSAIDs and recommends using less expensive choices first (Furst 1994). Evidence also suggests that the

use of "caps" on prescription drugs limits access to pain medications, especially to expensive opioids (Joranson 1994). With the increase in managed care programs, the access to prescription drugs might be restricted due to payor status.

Utilization of health services is another cost concern in pain management. Again, there is no scientific evidence of a relationship between utilization and optimal treatment, but decreasing utilization usually leads to lower costs. Patients with pain complaints tend to use more health services than patients without pain complaints. In New Zealand, analysis was done on patients in a pain clinic to determine their utilization of health services for pain in a twelve-month period (James 1992). The researchers discovered that patients in this pain clinic averaged 32.8 visits to a health professional per year. Personal costs to the patient were approximately $1,300 per year, not including payments made by insurers. Another study examined the costs of outpatient treatment of patients with chronic pain in a pain management clinic in Tennessee (Cicala 1989). It was determined that the Tennessee program significantly reduced the utilization and cost of services for patients enrolled at the clinic, but the intervention did not decrease the time of patient recovery.

Low Back Pain

Back pain is a leading cause for visits to primary care physicians (Von Korff 1994, Shekelle 1995). According to 1994 data from the National Center for Health Statistics at the Centers for Disease Control, 7.4% of the population in the United States had at least one episode of chronic back pain during 1993. Estimates of cumulative lifetime prevalence of low back pain have ranged from 60% to 80%, with the annual incidence ranging from 1% to 20% (Frymoyer 1991, Cherkin 1988, Deyo 1987). Estimated direct costs of medical care for this condition range from $8 billion to $13 billion annually, excluding disability and indirect costs (Frymoyer 1991, Bonica 1982).

AHCPR guidelines on acute low back pain advocate the use of nonprescription painkillers and mild exercise followed by conditioning exercises for most cases of low back problems. These recommendations state that nine out of ten patients with acute low back pain will recover within a month, and use of these guidelines will result in a large cost savings. Guidelines about chronic low back pain have not been published.

The type of provider chosen by a patient has been shown to affect health care utilization in low back pain. Many studies have tried to determine the best patterns and places for care in low back pain episodes. The North Carolina Back Pain Project performed a study to determine whether outcomes and costs vary according to type of practitioner initially seen for an episode of low back pain (Carey 1995). The researchers concluded that outcomes were similar whether patients received care from primary care practitioners, chiropractors, or orthopedic surgeons. Higher costs were associated with treatment by orthopedic surgeons and chiropractors, but these practitioners had the highest rates of patient satisfaction, with satisfaction being the greatest among patients seeing chiropractors. Costs were lowest for patients seen by HMO and primary care practitioners. An extensive epidemiologic study of back pain care was undertaken using data from the RAND Health Insurance Experiment

(Shekelle 1995). The authors identified patients using claims forms and found that 22% of their population had experienced episodes of care for back pain, that is, a visit or series of visits that surround a single diagnosis of back pain. Almost half of all episodes of care lasted one week or less, and 40% resulted in a single provider visit. However, 7% of the episodes resulted in more than 20 visits, accounting for a significant portion of the costs of all episodes of care. The number of visits per episode and the number of days per episode varied depending on the primary care provider. Chiropractors who functioned as the primary provider had a significantly larger mean number of visits and mean number of days than other types of providers. They were not able to conclude that chiropractors were more costly in treating back pain compared to other providers. Additional analysis using this same data showed that chiropractors were the primary provider for 40% of the episodes of care and retained 92% of patients with more than one episode of care (Shekelle 1995). Stano and Smith (1996) substantiated the finding that chiropractors retain more patients for subsequent episodes of low back pain and went on to conclude that total insurance payments were substantially less and patient satisfaction and quality indicators were more favorable for episodes with a chiropractic first encounter.

A patient's insurance status can also have an effect on the type of treatment they receive for back pain. In Washington state, patients receiving workers' compensation have higher rates of low back fusion surgery and reoperations than patients with other types of insurance, leading to higher utilization and costs (Taylor 1996). A similar study was undertaken to determine the costs to workers' compensation associated with low back pain claims. The authors found that low back pain represented 16% of all claims for workers' compensation but represented 33% of all claims costs (Webster 1994).

Provider attitudes and beliefs about low back pain and patients with low back pain are important when studying treatment modalities. A group of researchers determined that different styles of prescribing pain medications and bed rest to patients with back pain did not influence long-term outcomes, but a practice style characterized by less frequent prescription of pain medications and bed rest (often seen with chiropractors and primary care physicians) did lead to an increase in patient satisfaction and lower costs (Von Korff 1994). Cherkin and his associates completed two surveys about provider attitudes. The first study involved family physicians and chiropractors. Family physicians were found to be less comfortable managing patients with low back pain, more frustrated by patients with chronic low back pain, and feel their patients are less satisfied with their care than chiropractors (Cherkin 1988). The second study concentrated on physician beliefs (Cherkin 1994). A national sample of physicians was surveyed about their attitudes toward certain treatment modalities. Results showed little consensus among physicians that was attributed to the absence of clear practice guidelines and adherence to clinical experience to guide practice

Headache and Migraine

Headache and migraine are also leading causes for visits to primary care physicians, and the associated direct and indirect costs are large. According to 1994 data from the National Center for Health Statistics at the Centers for Disease Control, 4.4% of the

population in the United States had at least one episode of migraine headache during 1993. A meta-analysis of population-based studies showed that one-year migraine prevalence ranged from 1.7% to 33.1% in men and from 3.2% to 57.1% in women; the wide ranges were explained by variations in study populations and methodologies, including definition of migraine (Stewart 1994b). The same analysis found that the one-year headache prevalence ranged from 35.3% to 90% in men and from 46.2% to 95% in women. Estimates of cumulative lifetime prevalence of migraine are about 18% for women and about 6% for men (Lipton 1997, Stewart 1994b). Migraine is inversely associated with age and education and strongly associated with being female (Stang 1996). Estimates of migraine prevalence in the United States are usually higher in Caucasian populations than in African American or Asian Americans (Stewart 1996), but one study in a population in a prepaid health plan showed that minorities had higher rates of migraine than in the white population (Stang 1996). A study of Georgia Medicaid recipients concluded that females, whites, and people living in rural areas were more likely to suffer from migraines. These researchers found a lower prevalence in this population than they hypothesized, but offered the explanation that many Medicaid recipients self-treat headaches and migraines, resulting in the lowered estimates (Martin 1994). It is also been shown that headache, especially migraine, is a common complaint in people with low back pain, exacerbating their conditions and adding to their disability (Duckro 1994).

The economic burden of migraine headache is substantial. Estimated indirect costs due to loss of productivity for this condition are $1.4 billion annually for a national population survey study (Stang 1993). A study of a population of severely affected migraine sufferers, a subpopulation with higher rates of health care utilization, estimated indirect costs (defined as loss of productivity and missed work days) between $5.6 billion to $17.2 billion annually. Direct medical costs (defined as costs associated with physician visits, pharmacy usage, and hospital admissions) for this group were estimated at $816 per patient per year (Osterhaus 1992).

Also striking are the rates of utilization of certain health services by sufferers of headaches and migraines. An analysis by de Lissovoy and Lazarus (1994) of several studies of utilization showed that approximately 14% of patients with migraines used emergency department care, 16% saw a specialist, 7% required hospitalization, and 91% were using over-the-counter medication. More than half of all the migraine sufferers studied sought medical attention of some type. A study of patients enrolled in a health maintenance organization found that migraine patients generated nearly twice as many claims as a comparison group, and nearly 2.5 times as many pharmacy claims. Migraine patients are also much more likely to visit the emergency room than a comparison group, and their resultant charges were significantly higher (Clouse 1994). A comparison of emergency room visits of migraine patients and asthma patients showed that migraine patients utilized emergency room services at almost twice the rate of asthma patients (Kaa 1995). Most (89%) of migraine patients received additional medication at the emergency room compared to 57% of the asthma patients, and significantly higher numbers of these patients had multiple emergency department visits compared to asthma patients. However, most researchers agree that migraine is underdiagnosed and undertreated, and those who do seek medical attention often do not receive optimal care (Stewart 1994a).

Treatment of headache and migraine takes on many forms. Comparisons of costs of medications reveal the wide variety of available drugs and the wide variety of costs. Cost-benefit assessment of drug therapy is difficult due to the lack of consistency in prescription patterns (Steiner 1995). Since the costs associated with migraine are so high, prophylactic treatment is one remedy for keeping costs down (Adelman 1995). Aggressive treatment of acute migraine can also be cost-effective (Von Seggern 1996). In chronic headache pain, opioid therapy is sometimes the best therapy, but one study described barriers to proper prescription due to fear (real or perceived) of regulatory pressures (Markley 1994). In addition, many studies explored the necessity of tailoring treatment to the individual patient. Rapoport describes a dosing schedule that starts with simple analgesics and progresses to opioid therapy if a patient's condition does not improve or worsens (1994). This treatment pattern is shared by others (Von Seggern 1996, Adelman 1995, Blau 1994).

Chapter 2

Methodology and Analysis of Medicaid Claims Data on Chronic Pain Management

Methodology

The analysis of Virginia Medicaid claims data was designed to focus on two broadly defined diagnostic categories. Medicaid claims data from the 1995 and 1996 fiscal years were obtained from the Department of Medical Assistance Services. Data tapes used include practitioner data files, inpatient hospital records, outpatient hospital records, ancillary charges records, and pharmacy records. In aggregate, approximately 9 billion characters of data were screened to select appropriate data on back pain and headache patients.

The goal of the legislation was to determine the effects on Medicaid costs and services of pain resulting from an illness or injury. Data studied included hospital admissions and length of stay, physician visits, pharmacy usage, and rehabilitation therapies.

The goal of this effort was to assess Virginia Medicaid costs for the two diagnoses of back pain and headache, determine use of prescription drugs (including opioids), and to evaluate variations in treatment across regions and physician specialty. We defined an episode of illness as an initial treatment and all related treatment during the next twelve months. This is important because variations in treatment on initial presentation might be associated with variations in speed of symptomatic relief, recovery, and variations in subsequent health care cost. Therefore, we defined an episode of illness as including an initial medical care visit with a principal diagnosis for one of these two conditions, and including Medicaid costs of medical care for these patients related specifically to these diagnoses within one year of the initial encounter. Thus, we screened fiscal 1995 practitioner, outpatient, and inpatient files to identify all patients with a medical encounter for back pain or headache, and to identify the first encounter. We then screened the remainder of fiscal 1995 and all of fiscal 1996 records for any subsequent visits (including rehabilitation therapy visits) within one year of the initial visit where the patient's primary or secondary diagnoses also included back pain (or headache). Thus, outpatient office visits with health care providers and hospitalizations for unrelated medical problems are not included in this study.

All pharmacy records within the 12 month time period were reviewed for each of the identified patients. In contrast to hospital and practitioner visits, where diagnostic connections could be maintained across medical encounters, the pharmacy data does not contain diagnostic information. For this initial examination, we chose to include all drug prescriptions received by these patients during the subsequent 12 months. Clearly not all of these prescriptions were for back pain or headache. But the task of identifying each drug and choosing whether to include or exclude each prescription based only on its national drug code number is resource intensive and subjective. Thus the estimates of total cost of treating back pain and headache are overestimates in that they include pharmacy charges for prescriptions for other ailments during the same time period.

For each of these broad diagnostic categories, a list of ICD-9-CM codes was formulated to identify these conditions within the database. The list of ICD-9-CM codes used for identification of patients with low back pain was based on a list developed under research supported by the U.S. Agency for Health Care Policy and Research (Cherkin 1996). The previously published list was modified slightly to include a few additional diagnoses, based on local expertise. The list of ICD-9-CM codes used can be found in Appendix B. The list used for identification of patients with headaches was compiled through professional consultation with the University of Virginia Pain Management Center and is also in Appendix B. Virginia Health Planning Regions and component Planning Districts obtained from the Virginia Department of Health were used as definitions for geographic regions for the purpose of analysis (see Appendix B).

To examine patterns of care, we did the following, separately for each disease:

1. analyzed variations in the use of narcotics by region and physician specialty
2. analyzed variations in total cost, by region, by physician specialty, and by usage of narcotics.
3. analyzed whether the presence of more than one subsequent medical encounter is related to the type of initial drug therapy used

Analysis -- Back Pain

The diagnostic screens specified above identified 18,935 Medicaid patients who had at least one medical encounter during a 12 month period with a principal diagnosis of back pain. These patients received 85,857 practitioner visits, 18,047 hospital outpatient visits, 1,323 inpatient hospitalizations, and 428 visits to rehabilitation units with primary or secondary diagnoses of back pain during the 12 month period following their initial visit. Mean covered days for the 1,323 inpatient hospitalizations was 4.3 days.

Most of these 18,935 patients (64.6%) began their treatment episode with a practitioner visit in the practitioner's office, while 35% had an initial visit in a hospital outpatient setting. Twenty-five percent of these patients had an initial visit with a physician in general practice, 22% initially were seen by physicians in internal medicine, 14.7% are recorded as being initially examined by radiologists, 7% were seen by orthopedic surgeons, 13% are missing values, and 18% are widely dispersed among a variety of specialties. A total of 17,533 of the 18,935 patients (92.5%) received one or more prescriptions covered by Medicaid pharmacy benefits during the 12 months. The mean number of prescriptions per patient for the 17,533 patients was 32.8 prescriptions.

The 12-month total cost of back pain treatment for these 18,935 patients was $25.9 million. Much of this cost is accounted for by prescription drug use. Provider, hospital inpatient, and hospital outpatient expenses (including rehabilitation services) account for nearly $10 million. Expense for prescriptions account for more than $16 million.

Table 2-1

Twelve-Month Virginia Medicaid Costs Associated with Diagnosis of Back Pain

Type of treatment	Cost
Provider office visits	$3.41 million
Inpatient hospital	$3.53 million
Outpatient hospital	$2.89 million
Rehabilitation unit visits	$.11 million
Prescription drugs	$16 million
Total	$25.9 million

Total costs are rounded

Figure 2-1

Percent of Total Costs for Types of Treatment for Back Pain

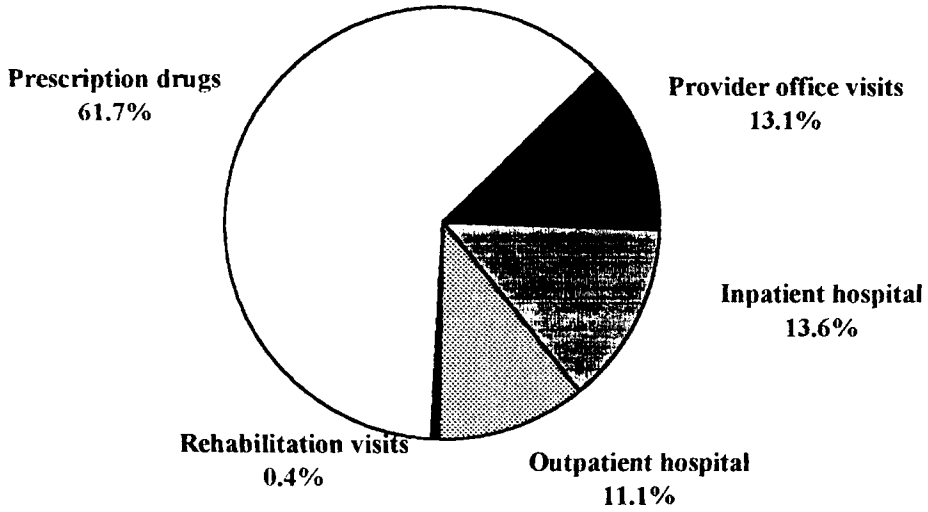


Table 2-2

Mean Twelve-Month Virginia Medicaid Costs Associated with a Diagnosis of Back Pain

Type of treatment	Mean Cost Per Patient
Provider office visits	$198
Inpatient hospital	$4198
Outpatient hospital	$315
Rehabilitation unit visits	$649
Prescription drugs	$913

Costs are rounded to the nearest dollar.

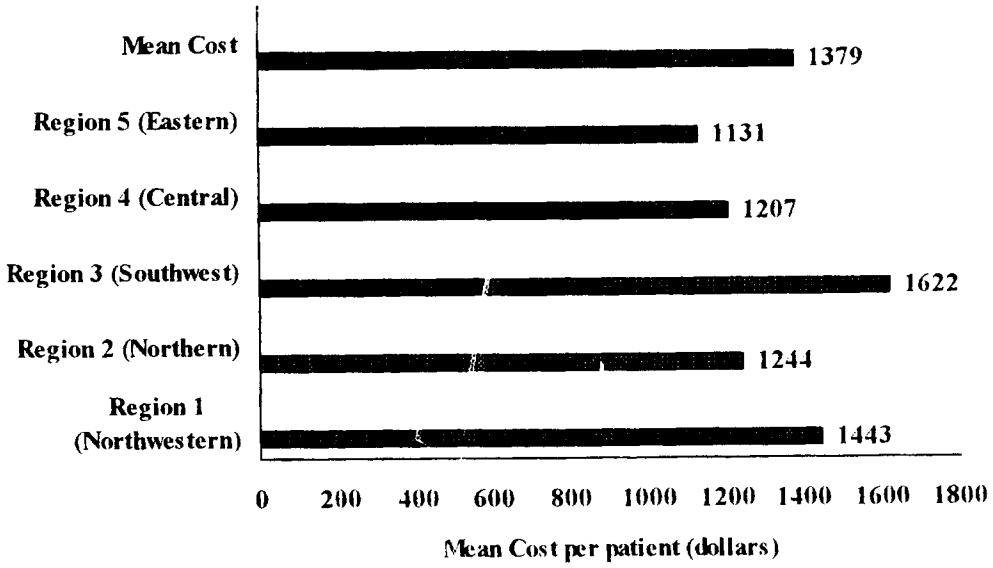
Thirty-seven percent of these patients had no additional Medicaid billed visit with a back pain diagnosis as a primary or secondary diagnoses during the succeeding 12 months after their initial visit and diagnosis. An additional 42% of patients had 1 to 4 additional billed encounters during these 12 months, and 89.5% of all patients had 10 or fewer total visits. Regarding cost distributions, approximately one-half (48%) of the total expense for physician

and hospital care for back pain patients is accounted for by the 89.5% of patients with 10 or fewer visits.

There are substantial variations across geographic regions in total non-drug costs and total costs. The overall mean cost per patient over 12 months was $1,379. Region I (Northwestern Virginia) averaged $1,443. Region II (Northern Virginia) averaged $1,244. Region III (Southwest) averaged $1,622. Region IV (Central Virginia) averaged $1,207 while Region V (Eastern Virginia) had the lowest cost at $1,131. Statistical testing indicates that these differences are highly significant (p=.0001, Chi-square=115, degrees of freedom=4). These differences remain significant when physician specialty is controlled as well. Please see Appendix B for an explanation of which counties made up each geographic region in the analysis.

Figure 2-2

Total Costs Associated with a Diagnosis of Back Pain by Geographic Region



Age, sex and race distributions are relatively unremarkable. A majority of patients are female (74%), older than 18 years of age (82%), and Caucasian (61%).

Direct outcome measures are not collected in this data base. One could view the number of visits after some time period or the number and type of prescriptions as an outcome of early care. We analyzed the potential influence of type of first prescription on subsequent prescriptions, costs, and practitioner visits by characterizing whether the first prescription was for a strong opioid or not. For this analysis, strong opioid was defined to include morphine, demerol, fentanyl, hydromorphone, methadone, and oxycodone. Mechanically, any value among the 350 different values of the National Drug Code corresponding to one of

these drugs was considered. In aggregate, 377 patients received a strong opioid as their first prescription. The other 17,156 patients who received one or more prescriptions did not receive an opioid as their first prescription. When we contrast the group of patients who initially received strong opioids with those who did not, we find a statistically significant difference ($p=.01$) in the total number of subsequent drug prescriptions, total cost of subsequent drug prescriptions, total number of medical encounters and total cost for practitioner/hospital encounters. In each case the patients who initially received opioids consumed more resources later in their course of care. This is consistent with the hypothesis that patients who received strong opioids initially had more severe disease than the average of those patients who did not receive strong opioids.

Analysis --Headache

A parallel analysis was conducted on headache patients with very similar results. Overall, headache patients cost less, had fewer visits and fewer prescriptions than back pain patients, but the overall results are similar in distribution.

The diagnostic screens specified above identified 19,751 Medicaid patients who had at least one medical encounter during a 12 month period with a principal diagnosis of headache. These patients received 62,554 practitioner visits, 14,470 hospital outpatient visits, 534 inpatient hospitalizations, and 2403 visits to rehabilitation units with primary or secondary diagnoses of headache during the 12 month period following their initial visit. Mean covered days for the 534 inpatient hospitalizations was 4.6 days.

Most of these 19,751 patients (70.2%) began their treatment episode with a practitioner visit in the practitioner's office, while 29.7% had an initial visit in a hospital outpatient setting. Twenty-two percent of these patients had an initial visit with a physician in general practice, 21% initially were seen by physicians in internal medicine, 17% are recorded as being initially examined by radiologists, 5% were seen by neurologic surgeons, 14% are missing values, and 21% are widely dispersed among a variety of practitioners. A total of 17,863 of the 19,751 patients (90.4%) received one or more prescriptions covered by Medicaid pharmacy benefits during the 12 months. The mean number of prescriptions per patient for the 17,863 patients was 26.2 prescriptions.

Included in the above analysis were visits to rehabilitation units. A total of 2403 visits were recorded for patients with a diagnosis of headache. Because this number was so much larger than the number of rehabilitation unit visits found in the back pain population, further analysis was done. It was found that 101 patients consumed all 2403 visits to rehabilitation providers; 18 patients had 50 or more visits each, and one patient had 88 visits.

The 12-month total cost of headache treatment for these 19,751 patients was $18.3 million. As in the back pain analysis, most of this cost is accounted for by drug use. Provider, hospital inpatient, and hospital outpatient expenses (including rehabilitation services) account for just over $5 million. Expenses for prescriptions account for more than $13.3 million.

Table 2-3

Twelve-Month Virginia Medicaid Costs Associated with a Diagnosis of Headache

Type of treatment	Cost
Provider office visits	$1.67 million
Inpatient hospital	$1.44 million
Outpatient hospital	$1.48 million
Rehabilitation unit visits	$.42 million
Prescription drugs	$13.3 million
Total	$18.3 million

Total costs are rounded

Figure 2-3

Percent of Total Costs for Type of Treatments for Headache

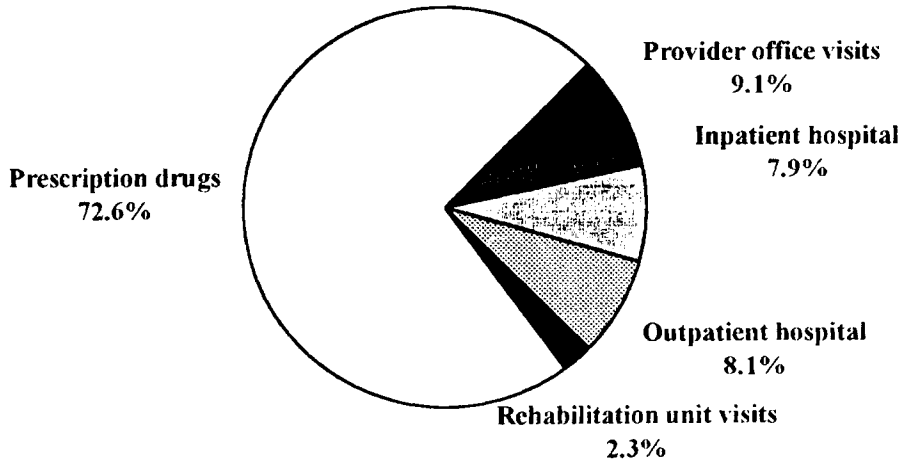


Table 2-4

Mean Twelve-Month Virginia Medicaid Costs Associated with a Diagnosis of Headache

Type of treatment	Mean Cost Per Patient
Provider office visits	$92
Inpatient hospital	$4004
Outpatient hospital	$195
Rehabilitation unit visits	$4175
Prescription drugs	$760

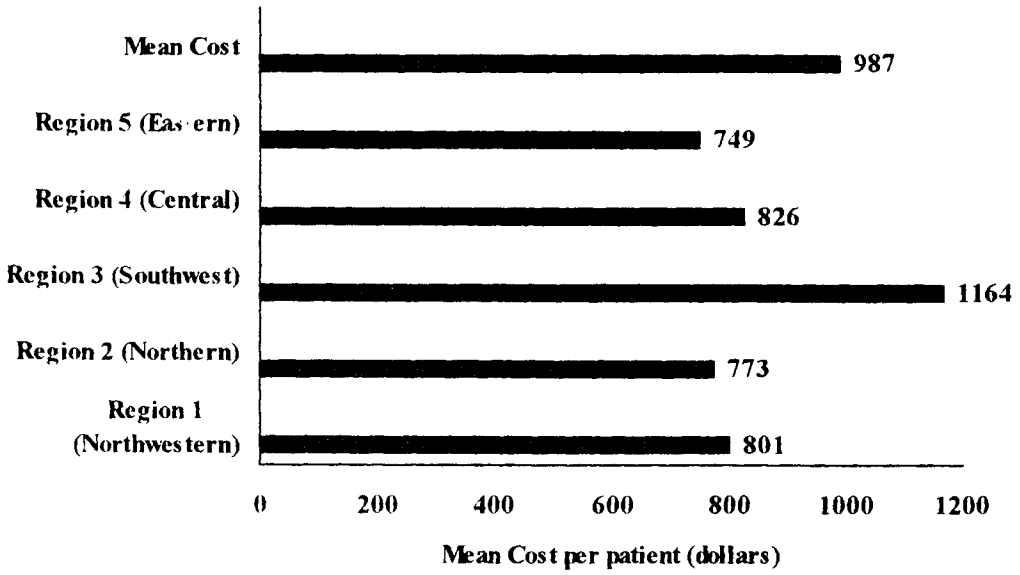
Costs are rounded to the nearest dollar.

Forty-eight percent of these patients had no additional Medicaid billed visits with a headache diagnosis as a primary or secondary diagnoses during the succeeding 12 months after their initial visit and diagnosis. An additional 39% of patients had 1 to 4 additional billed encounters during these 12 months, and 94.5% of all patients had 10 or fewer total visits. Regarding cost distributions, approximately two-thirds (64%) of the total expense for physician and hospital care for headache patients is accounted for by the 94.5% of patients with 10 or fewer visits.

Again, there are substantial variations across geographic regions in total non-drug costs and total costs. The overall mean cost per patient over 12 months was $987. Region I (Northwestern Virginia) averaged $801. Region II (Northern Virginia) averaged $773. Region III (Southwest) averaged $1,164. Region IV (Central Virginia) averaged $826 while Region V (Eastern Virginia) had the lowest cost at $749. Please see Appendix B for an explanation of which counties made up each geographic region in the analysis. Statistical testing indicates that these differences are highly significant (p=.0001, Chi-square=113, degrees of freedom=4). These differences remain significant when physician specialty is controlled for as well.

Figure 2-4

Total Costs Associated with a Diagnosis of Headache by Geographic Region



Age, sex and race distributions are relatively unremarkable. A majority of patients are female (71%), older than 18 years of age (64%), and Caucasian (57%). These demographics are as expected in the Medicaid population.

Since direct outcome measures are not collected in this data base, we analyzed the potential influence of type of first prescription on subsequent prescriptions, costs, and practitioner visits by characterizing whether the first prescription was for a strong opioid or not. For this analysis strong opioid was defined to include morphine, demerol, fentanyl, hydromorphone, methadone, and oxycodone. Mechanically, any value among the 350 different values of the National Drug Code corresponding to one of these drugs was considered. In aggregate, 270 patients received a strong opioid as their first prescription. The other 17,193 patients who received one or more prescriptions did not receive an opioid as their first prescription. When we contrast the group of patients who initially received strong

opioids with those who did not, we find a statistically significant difference (p=.01 to .04) in the total number of subsequent drug prescriptions, total cost of subsequent drug prescriptions, total number of medical encounters and total cost for practitioner/hospital encounters. In each case, the patients who initially received opioids consumed more resources later in their course of care. This is consistent with the hypothesis that patients who received strong opioids initially had more severe disease than the average of those patients who did not receive strong opioids. The same result was found in the back pain analysis done for this study.

Limitations of the Analysis

The primary limits to the usefulness of the results of this study are the limits on the type of data available. Better analyses would be possible if more comprehensive data were available on severity of presenting illness and on speed and completeness of recovery. However, the data that are available are generated as a consequence of processing financial transactions, which does not record outcomes.

Examination of internal consistency indicates that most potential errors would have little impact on the overall results reported above. Further details on data limitations are in Appendix G.

Discussion

Most patients with these two categories of pain respond fairly promptly to treatment, but there are clearly some long-term, expensive patients. The latter may account for most of the potential savings among these patients, and most of the potential meaningful improvement in efficacy of care.

We were not able to differentiate between prescriptions directly related to a diagnosis of back pain or headache and those prescriptions written for other ailments due to data limitations described above in the pharmacy files. This can account for some of the wide gap between the costs for direct medical care and the costs for prescription drugs. However some drugs, such as antidepressants (Prozac, Paxil, Zoloft), are frequently prescribed for many conditions, including pain management, increasing the difficulty of attributing prescriptions to a specific diagnosis without examining the patient's chart.

Given the recent AHCPR guidelines suggesting over-the-counter medications and rest for presenting backache, it is interesting to contemplate what effect widespread implementation of this treatment pattern would have on this data. We have no way of knowing for sure, but comparing the visit distribution and prescription distribution from this data with future data would at least provide a mechanism to audit the potential effect of such a program. One would also be interested in the portion of patients who return with symptoms more than 14 to 28 days after initial presentation. The current data could yield information on how many patients return in that time frame, but documentation of severity of symptoms is weak.

Chapter 3

Methodology and Analysis of the Provider Survey

Methodology

The provider survey was designed by the study team, headed by Wendy Novicoff. Several of the questions were adapted from the UVA Pain Management Questionnaire, a survey that was sent to all attendings and housestaff at the University of Virginia in 1996. Input was received from Donald Manning, John Rowlingson, and the Joint Subcommittee to Study the Commonwealth's Current Laws and Policies Related to Chronic, Acute, and Cancer Pain Management. A mailed survey was employed due to the short amount of time allotted to this study and to the lack of study personnel necessary to conduct a telephone survey. In addition, members of the study population, mostly physicians, are difficult to reach by telephone. The survey was pilot-tested on a convenience sample of ten pain management providers at the University of Virginia; their comments were incorporated in the final draft of the questionnaire (Appendix E).

The sample who received the survey consisted of two distinct groups: pain management specialists and primary care providers. Pain management specialists were identified through mailing lists of the Virginia members of the American Pain Society, the American Academy of Pain Management and the American Society of Anesthesiologists. All members of these societies received a mailing. It was determined that primary care providers also see many patients with a primary complaint of pain, so we surveyed primary care physicians about their pain management practices as well. A random sample of physicians was obtained from the Center for the Advancement of Generalist Medicine at the University of Virginia. The decision was made to exclude chiropractors and other health professionals who are not eligible to be compensated by Medicaid. Several chiropractors did express an interest in participating in the study, so personal interviews were conducted with three members of the Virginia Chiropractic Association in order to include their views (Appendix F).

On June 19, 1997, a total of 798 surveys were mailed: 354 went to primary care physicians and 444 went to pain management specialists. We started receiving completed surveys on June 23, 1997 and continued to collect them until July 11, 1997 for a total collection period of 3 weeks. As a requirement for using the mailing lists from the above organizations, we could not do any follow-up, either by phone or mail. A total of 168 completed and usable surveys were returned for a response rate of 21%. Due to the lack of follow-up, the choice of using a mailed survey, and the characteristics of the sample population, this response rate was as expected and within ranges found in the literature for similar surveys.

Survey data was entered into an SPSS data file for analysis. Frequencies and descriptives were run for all variables. Chi-square tests were run on selected variables to determine possible associations. T-tests were run on appropriate variables to test for

significant differences in sample means. In addition, sub-analyses were done for each sample and on the variables for specific characteristics: age, occupation, and physician specialty.

Analysis

The most striking findings after analyzing the surveys were that the two subsamples, the primary care providers and the pain specialists, did not differ significantly in their overall answers to the questions, and that there was substantial variation within the subsamples. That is, within the sample of pain specialists, there was little consistency in how the group answered. This affirms previous studies of caregivers, especially in the areas of training, experience, and attitudes towards pain (Cherkin 1995, Parris 1992, Cherkin 1991a, Cherkin 1991b, Cherkin 1988). Therefore, all tables presented in this chapter represent results from the whole study sample. Additional tables describing analyses done on the subsamples can be found in Appendix E.

Provider Demographics

We analyzed data from 168 completed and usable surveys (response rate 21%). Slightly over half of the respondents were pain specialists (51.8%) with the remainder (48.2%) in the primary care subsample. Almost half of the respondents reported that they were in private practice (48.1%) and most were male (81.8%). The respondents tended to be middle-aged (44.9% with ages between 41 and 50) and to have completed between two and five years of a residency program. There was a large range in the number of general patients treated per week (0-200), the number of patients with noncancer pain treated per week (0-120) and the percent time spent treating patients with pain (0-100%). As expected, primary care providers treated more patients per week (90 vs. 50; $p < .0001$) than pain specialists, but they reported that they see fewer patients per week for noncancer pain complaints than specialists (10 vs. 22; $p < .0001$) and consequently spend less time treating pain overall (12% vs. 40%; $p < .0001$). Pain specialists see fewer patients on Medicaid than do primary care providers ($p < .02$). Pain specialists also see more patients with a primary complaint of low back pain, while primary care providers see more patients with headache complaints ($p < .001$ for both comparisons).

Table 3-1: Occupation of survey respondent (more than one answer was allowed) - Full sample

OCCUPATION	*Frequency*	*Percent*	*Cum. Percent*
Attending	51	27.9	27.9
Private Practitioner	88	48.1	76.0
Managed Care Practitioner	14	7.7	83.6
Other	30	16.4	100.0
Total	183	100.0	100.0

Table 3-2: Age of survey respondent - Full sample

AGE	*Frequency*	*Percent*	*Cum. Percent*
20-30	1	.6	.6
31-40	48	28.7	29.3
41-50	75	44.9	74.3
>50	43	25.7	100.0
Total	167	100.0	100.0

Table 3-3: Years of residency training for survey respondent - Full sample

NUMBER YEARS RESIDENCY	*Frequency*	*Percent*	*Cum. Percent*
2-5	90	84.1	84.1
6-10	14	13.1	97.2
>10	3	2.8	100.0
Total	107	100.0	100.0

Table 3-4: Specialty of survey respondent (more than one answer allowed) - Full sample

SPECIALTY	*Frequency*	*Percent*	*Cum. Percent*
Anesthesiology	34	20.2	20.2
Medicine	60	35.7	56.0
PM&R	18	10.7	66.7
Surgery	8	4.8	71.4
Other	48	28.6	100.0
Total	168	100.0	

Provider Education on Pain

Nearly half of the caregivers reported learning most about pain through clinical experience, rather than through formalized training either in medical school or residency. Over three-quarters of the total study sample had received continuing medical education about pain and pain management. As expected, more pain specialists (84.9%) received continuing medical education on pain than primary care providers (65.4%). The format of the continuing medical education ranged from lectures or presentations, with 31.9% of the whole study sample obtaining their CME in this way, to receiving written materials (24.1%). Only 21.2% of the study respondents had attended a formal course on pain and pain management.

Additional analyses were done by selecting groups of respondents based on certain demographic characteristics. One such analysis compared the answers of respondents who were anaesthesiologists with those that reported their specialty as general or internal medicine.

Most of the anaesthesiologists (93.9%) had received some form of continuing medical education on pain as compared to the internal medicine group (72.2%).

Table 3-5: Has survey respondent had continuing education on pain - Full sample

CONTINUING EDUCATION ON PAIN	*Frequency*	*Percent*	*Cum. Percent*	*Percent*
Yes	124	75.6	75.6	
No	40	24.4	100.0	
Total	164	100.0	100.0	

Table 3-6: Source of most of pain education for survey respondent (more than one answer allowed) - Full sample

SOURCE OF MOST OF EDUCATION	*Frequency*	*Percent*	*Cum. Percent*
Clinical experience	92	47.2	47.2
Continuing education	41	21.0	68.2
Medical school	4	2.1	70.3
Personal experience	10	5.1	75.4
Residency	35	17.9	93.3
Other	13	6.7	100.0
Total	195	100.0	100.0

Table 3-7: Format of continuing education on pain for survey respondent (more than one answer allowed) - Full sample

FORMAT OF CONTINUING EDUCATION	*Frequency*	*Percent*	*Cum. Percent*
Formal course	65	21.2	21.2
Lecture or presentation	98	31.9	53.1
Written materials received	74	24.1	77.2
Personal research (library)	58	18.9	96.1
Other	12	3.9	100.0
Total	307	100.0	100.0

Provider Attitudes About Pain and Pain Management

Several questions were asked about how insurance status may affect caregiver ability to use specific treatment modalities. A majority of the respondents (range from 66% to 78%) stated that a patient's insurance status sometimes or always affects their ability to use psychiatric services, implantable devices, interventional procedures, radiologic imaging, and EMG studies. Insurance status had less of an effect on the ability of a caregiver to use sustained release opiates or prescription drugs. Few primary care providers ask their patients to rate their pain at each visit as compared to pain specialists (9.7% vs. 65.1%). Anaesthesiologists were much more likely to have their patients rate their pain than general medicine caregivers (86.7% vs. 13.6%, $p < .0001$).

In general, there was much variation in the answers to questions dealing with the prescription of opioids. The primary care group agreed that tolerance, physical dependence, and addiction impede the use of opioids. There was less consensus about the effects that regulatory or legal pressures might have. The pain specialist group tended to agree that addiction and regulatory pressures were problems. Both groups agreed that prescription of opioids was not contraindicated for patients with traumatic pain or cancer pain, but the primary care group was more concerned about prescription of long-term opioids to patients with non-cancer pain than the pain specialists ($p < .0001$). These groups also differed on their views about who is best to treat pain. The primary care group tended to disagree with the statements that a pain specialist is the best person to treat pain and that a pain specialist is the best person to treat continued pain. The pain specialist group tended to agree with these questions, although there was more variance in their answers to the question dealing with the treatment of continued pain.

For the subgroup analysis, the anaesthesiology group tended to agree only that regulatory pressures impede the long-term use of opioids. In contrast, the general medicine group tended to believe that tolerance, physical dependence, and addiction impedes long term use of opioids. They also agreed that regulatory pressures affect the prescription of long term opioids, but were mixed on whether legal pressures would affect prescription practices. Again, both subgroups agreed that prescription of opioids was not contraindicated for patients with traumatic pain or cancer pain, but the general medicine group was more concerned about prescription of long-term opioids to patients with non-cancer pain than the anaesthesiologists ($p < .01$). These subgroups also differed on their views about who is best to treat pain. The general medicine group tended to disagree with the statements that a pain specialist is the best person to treat pain and that a pain specialist is the best person to treat continued pain. The anaesthesiology group tended to agree with these questions.

Table 3-8: Does survey respondent have patients rate pain at each visit? - Full sample

DO YOU HAVE PATIENTS RATE PAIN?	*Frequency*	*Percent*	*Cum. Percent*
Yes	61	39.4	39.4
No	94	60.6	100.0
Total	155	100.0	100.0

Additional survey tables for the analyses of the separate samples of primary care physicians and specialists can be found after the survey instrument in Appendix E.

Discussion

The provider survey reaffirmed what was found in the literature: there is little consensus about treatment modalities and what type of practitioner is best to treat pain regardless of the underlying condition or type of pain. Due to practice variations, we could

not determine best outcomes for the treatment of pain. We also did not find any patterns in the answers to questions about prescription of opioids, except that most providers reported that they would not prescribe opioids for patients with chronic noncancer pain. Even though anecdotal evidence and evidence in the academic and popular literature show that legal and regulatory pressures are major concerns to providers, there was no unified concern in this sample. Providers also tend to look at a patient's insurance status before prescribing treatment, which might lead to poorer outcomes and higher cost due to prolonged treatment with ineffective methods. We cannot make assumptions about how treatment differences would affect Medicaid recipients versus patients with other types of insurance.

Our survey instrument and methodology do have some limitations. The low response rate might limit the generalizability of the findings, but we believe that our results can be reasonably indicative of attitudes of providers in the Commonwealth of Virginia. We would expect that nonresponders would also vary substantially in their responses to our questions. We were hindered by time and personnel constraints and by our inability to do follow-up on our mailed survey. In an optimal situation, we would employ a telephone survey, which has been shown to consistently garner higher response rates than mailed surveys. We also acknowledge the importance of follow-up in any survey, especially mailed surveys, but we were not able to do any due to agreements with providers of mailing lists.

Chapter 4

Recommendations

The following are recommendations based on the analyses performed in this study:

Recommendation: Decrease the cost of treatment for back pain and headache by closer management, on the part of DMAS and Medicaid providers, of patients with records of high utilization (more than 10 visits to a health care provider per year). DMAS is currently developing a program that would provide disease management services to Medicaid patients with chronic conditions. It is possible that chronic pain could be identified as a chronic disease to be targeted by this program.

The costs of treatment for back pain and headache in the Medicaid population in Virginia are large, totaling approximately $41.4 million, including drug costs. This figure does not include indirect costs, such as loss of productivity or lost work days, so the total cost of these two diseases in Virginia might be higher. With respect to utilization, while most patients with a diagnosis of back pain or headache seek medical care on 10 or fewer occasions per year, the patients who have more than 10 encounters per year account for a large portion of the total direct costs related to these diseases. Specifically:

- For low back pain, 89.5% of patients had 10 or fewer visits, but the 10.5% of patients who had more than 10 visits per year accounted for 52% of the total cost of treatment.
- For headache, 94.5% of patients had 10 or fewer visits, but the 5.5% of patients who had more than 10 visits per year accounted for 36% of the total cost of treatment.
-

We cannot estimate cost savings due to closer management of these patients.

Recommendation: Examine more closely the reasons for significant differences in utilization and cost of health services in the geographic regions of the Commonwealth.

Significant cost differences were found across geographic regions for both back pain and headache patients. It is unclear from this analysis whether there is a relationship between utilization and costs and clinical outcomes. Information concerning severity of illness and other risk adjustment factors were not available in the database. Further analysis might show why these differences occur and whether costs and utilization in one region are excessively high or excessively low.

Recommendation: More education for health care professionals about pain and available treatment options, including prescription of opioids, is needed. Educational materials based on clinical guidelines, such as the guidelines developed by the American Society of Anesthesiologists, could provide standardized treatment options. In addition, SJR No. 366 (1997) called for the study of pain management curricula in the medical schools in the Commonwealth; recommendations from this study could be incorporated to supplement existing education programs for medical students.

Health care professionals have varied opinions about pain, pain education, and treatment modalities. Specific problems include:

- inadequate knowledge of analgesic pharmacology and pain therapy
- poor pain assessment
- concern about regulatory oversight
- fear of patient addiction
- concern about the side effects of analgesics
- concern about development of tolerance to analgesics

Recommendation: More education for patients and their nonprofessional caregivers about pain and available treatment options, including prescription of opioids, is needed.

Patients often lack knowledge about pain and available treatment options. Specific problems include:

- reluctance to report pain
- reluctance to take pain medications
- inadequate educational tools

Recommendation: Existing laws and regulations governing prescription of opioids and provisions for reimbursement for pain should be examined for undue restrictions whether real or perceived.

Current laws and regulations, and patient and provider perception of these laws and regulations impact how pain is treated. The low priority given to pain management, often inadequate or inappropriate provisions for reimbursement for treatment, and restrictive regulation of controlled substances preclude appropriate treatment of pain. Possible reimbursement for complementary treatment options (such as chiropracty and massage therapy), based on the experience of other states, should also be examined.

Chapter 5

Concluding Remarks

Studies are needed to determine whether the different perspectives and attitudes of caregivers are associated with differences in the costs and outcomes of care. Unfortunately, we could not do this with the available data.

While the providers surveyed for this study reported receiving education on pain and pain management, we were not able to assess the adequacy of this knowledge. The academic literature shows that medical societies and many providers are concerned that health care providers are not trained in how to deal with pain, especially with chronic pain. In addition, health care providers are concerned about possible patient addiction, tolerance, and side effects to certain medications, and they are also worried about strict regulations and laws surrounding the prescription of controlled substances such as narcotics. More education for health care professionals and patients about pain and available treatment options, including prescription of opioids, is needed. Clinical guidelines may help to decrease variability in provider knowledge and attitudes about pain and pain management and may help to decrease variation in treatment modalities.

Many also believe that the health care system is also not invested fully in treating pain (see literature review for more detail and citations). The low priority given to pain management, often inadequate or inappropriate provisions for reimbursement for treatment, and restrictive regulation of controlled substances preclude appropriate treatment of pain. Possible reimbursement for complementary treatment options should also be examined.

Back pain and headache affect many people in the general population of the United States and large numbers of the Virginia Medicaid population in particular. Chronic pain resulting from these diagnoses results in high costs and high utilization of health care services by afflicted patients. Effective pain management, either through increased education to providers and patients or more effective therapies, could decrease the total costs associated with back pain and headache.

Appendix A
Legislation Governing Study

SENATE JOINT RESOLUTION NO. 368

Requesting the Department of Medical Assistance Services to conduct a study to determine how pain resulting from illness or injury affects Medicaid costs and services.

Agreed to by the Senate, January 30, 1997
Agreed to by the House of Delegates, February 13, 1997

WHEREAS, in the continuing resolution for the Joint Subcommittee to Study the Commonwealth's Current Laws and Policies Related to Chronic, Acute and Cancer Pain Management, House Joint Resolution No. 256 (1996), one of the stated objectives of the joint subcommittee was to evaluate the economic effects of pain management, particularly as related to chronic pain; and

WHEREAS, during the 1996 interim study, the joint subcommittee earnestly sought data from several sources on the economic benefits of proper management of chronic pain on various benefits programs, but was unsuccessful; and

WHEREAS, studies of chronic pain patients enrolled in pain management programs indicate that 80 percent of physician visits are for pain complaints, that 23 million Americans have back pain, and that 24 million Americans have debilitating headaches; and

WHEREAS, various studies have found that pain management for acute and cancer pain can shorten hospital stays, improve outcomes, and reduce physician visits; and

WHEREAS, the aforementioned study results indicate that use of pain management would be of benefit to the Commonwealth in reducing the costs of medical assistance; now, therefore, be it

RESOLVED by the Senate, the House of Delegates concurring, That the Department of Medical Assistance Services be requested to conduct a study to determine the effects on Medicaid costs and services of pain resulting from an illness or injury. Data studied should include, but not be limited to, hospital admissions and length of stay, physician visits including specialists, pharmacy usage, and rehabilitation therapies. In conducting its study, the department shall seek the assistance of various participating providers and may design its study to cover one diagnosis or injury or a group of diagnoses or injuries. The study report should identify any patterns of treatment, treatment that appeared to shorten the duration of pain, and best outcomes.

All agencies of the Commonwealth shall provide assistance to the department for this study, upon request. The department shall present a preliminary report to the Joint Subcommittee Studying the Commonwealth's Current Laws and Policies Related to Chronic, Acute, and Cancer Pain Management by November 1, 1997.

The Department of Medical Assistance Services shall complete its work in time to submit its findings and recommendations to the Governor and the 1998 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents.

Appendix B
Tables and Charts Referenced in Report Text

List of ICD-9-CM Codes Used for Identification of Low Back Pain Patients in the Medicaid Data Files

Clinical Category	ICD-9 Codes	Diagnosis
Herniated disc	722.1	Displacement of thoracic or lumbar disc without myelopathy
	722.10	Displacement of lumbar disc without myelopathy
	722.2	Diplacement of unspecified disc without myelopathy
	722.70	Disc disorder with myelopathy, site unspecified
	722.73	Lumbar disc disorder with myelopathy
	722.0*	Radiliculitis due to disc involvement
Probably degenerative changes	721.3	Lumbosacral spondylosis without myelopathy
	721.5-.8	Unique or unusual forms of spondylosis
	721.90	Spondylosis of unspecified site without myelopathy
	722.52	Degeneration of lumbar of lumbosacral disc
	722.6	Degeneration of disc, site unspecified
	722.90	Other and unspecified disc disorder, site unspecified
	722.93	Other and unspecified lumbar disc disorder
Spinal stenosis	721.42	Spondylogenic compression of lumbar spinal cord
	721.91	Spondylogenic compression of spinal cord, not specified
	724.00	Spinal stenosis, unspecified site (not cervical)
	724.09	Spinal stenosis, other
	724.02	Lumbar stenosis
Possible instability	724.6	Disorders of sacrum (including lumbosacral joint instability
	738.4	Acquired spondylolisthesis
	756.11	Spondylolysis, lumbosacral region
	756.12	Spondylolisthesis
Fractures (closed without spinal cord involvement	805.4	Lumbar fracture
	805.6	Sacral or coccygeal fracture
	805.8	Vertebral fracture of unspecified site
Nonspecific backache	307.89	Psychogenic backache
	724.2	Lumbago
	724.5	Backache, unspecified
	846.0-9	Sprains and strains, sacroiliac
	847.2	Sprains and strains, lumbar
	847.3	Sprains and strains, sacral
	847.9	Sprains and strains, unspecified region
Sequelae of previous back surgery	722.80	Postlaminectomy syndrome, unspecified region
	722.83	Postlaminectomy syndrome, lumbar
	996.4	Mechanical complication of internal orthopedic device, implant, and graft
Miscellaneous	722.30	Schmori's nodes, unspecified region
	722.32	Lumbar Schmori's nodes
	724.3	Sciatica
	724.4	Thoracic or lumbosacral neuritis or radiculitis, unspecified
	724.8	Other symptoms referable to back
	724.9	Other unspecified back disorders
	737.10-.30	Idiopathic scoliosis
	738.5	Other acquired deformity of back or spine
	739.3	Nonallopathic lesions, lumbar region
	739.4	Nonallopathic lesions, sacral region
	756.10	Anomaly of spine, unspecified
	756.13-.19	Various congenital anomalies
	355.0*	Mononeuritis - sciatic nerve
	724.79*	Coccyx
	729.2*	Radicular pain
	953.5*	Injury nerve - lumbar plexus
	953.2*	Injury nerve - spinal root - lumbar

* ICD-9-CM codes added after consultation with pain specialists

List of ICD-9-CM Codes Used for Identification of Headache Patients in the Medicaid Data Files

Clinical Category	ICD-9 Codes	Diagnosis
Migraine	346.9	Migraine, unspecified
	346.0	Migraine, with aura
	346.2	Migraine, allergic
	346.1	Migraine, atypical
	346.0	Migraine, classical
	346.1	Migraine, common
	346.2	Migraine, lower half
	625.2	Migraine, menstrual
	346.8	Migraine, ophthalmic
	346.2	Migraine, variant
Headache, not migraine	784.0	Facial pain
	350.2	Facial pain, atypical
	959.0	Injury nerve, occipital

Geographic Regions of the Commonwealth of Virginia
Source: Health Planning Regions, Virginia Department of Health

Health Planning Region	Component Planning Districts
1 (Northwestern)	Central Shenandoah, Lord Fairfax, Rappahannock-Rapidan, Thomas Jefferson, RADCO
2 (Northern)	Northern Virginia
3 (Southwest)	Lenowisco, Cumberland Plateau, Mount Rogers, New River Valley, Fifth, Central Virginia, West Piedmont
4 (Central)	Southside, Piedmont, Richmond Regional, Crater
5 (Eastern)	Northern Neck, Middle Peninsula, Accomack-Northampton, Hampton Roads

A graphical representation of geographic regions follows this page.

Appendix C
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Appendix D
Practice Guidelines

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Copies of the above guidelines are attached separately to this report.

Appendix E
Survey Instrument and Related Tables

June 18, 1997

Dear Health Professional:

The 1997 General Assembly asked the Department of Medical Assistance Services (DMAS), the state Medicaid agency, to conduct an independent, in-depth study of the effects of chronic pain on Medicaid costs and services of pain management.

The University of Virginia is conducting this study on behalf of DMAS. To that end, we are contacting pain specialists and primary care physicians around the state through this written survey in order to have a better understanding of how pain is treated from the perspective of the caregiver. We are also doing extensive data analysis using the state Medicaid database to obtain cost and utilization information.

Please find enclosed a survey that is being sent to pain specialists and a sample of primary care physicians. We ask your participation in our study by completing the survey and returning it to us. This information is vital in helping us understand the issues surrounding the treatment of pain. Your input, through this questionnaire, will provider valuable information to the study team as we formulate our report. The answers will be tabulated and reported to DMAS and the General Assembly in summary form only, and no individual person will be identified.

Instructions for completing and returning the survey are enclosed. The project team sincerely thanks you in advance for your assistance in this important study. Please feel free to contact Wendy Novicoff at 804-924-8598 if you have questions or concerns.

Sincerely,

Donald Manning, MD, PhD
Department of Anesthesiology Sciences
University of Virginia School of Medicine
Medicine

Wendy M. Novicoff, Project Director
Department of Health Evaluation
University of Virginia School of

PAIN MANAGEMENT SURVEY

The purpose of this study is defined by Senate Joint Resolution 368, that the Department of Medical Assistance Services has been requested to conduct a study to determine the effects on Medicaid costs and services of pain resulting from an illness or injury. The Department of Health Evaluation Sciences at the University of Virginia School of Medicine has been asked to do this evaluation This survey of providers is part of the study. Your answers to the following questions will provide valuable information to the study team as they formulate their report. Please fill out this survey as completely as possible. When you are finished, please mail or fax to:

Pain Management Provider Survey
Department of Health Evaluation Sciences
University of Virginia School of Medicine
Box 600, Health Sciences Center
Charlottesville, VA 22908
FAX (804) 924-8437

All answers will be tabulated and reported to the Department of Medical Assistance Services, the Virginia Department of Health, and the Virginia General Assembly in summary form only. No individual person will be identified.

1. Current occupation (please fill in the circle for all that apply):

O Attending at Academic Medical Center/Teaching Hospital

O Physician in private practice (non-managed care)

O Physician in managed care organization (including PPO, HMO, *etc.*)

O Other, please specify occupation and degree(s) _____

If applicable: # Years Residency O 0 O 1 O 2-5 O 6-10 O >10

2. Gender: O female O male

3. Age: O 20-30 O 31-40 O 41-50 O >50

4. SPECIALTY:

O Anesthesiology
O Medicine
If medicine, chose one:
O Emergency O Family Practice O Internal
O Neurology
O PM & R
O Surgery
O Other, please specify _____

5. Please indicate the source of **most** of your education regarding pain evaluation and treatment. (Choose one)

O Clinical experience
O Continuing education
O Medical school
O Personal experience
O Residency
O Other, please specify _____

6. Have you ever received continuing education on pain management?

O yes O no

7. What was the format of this education? Please fill in the circle for all that apply.

O Formal course
O Lecture or presentation at hospital, conference, etc.
O Written materials received from outside sources
O Personal research (library, internet, etc.)
O Other, please specify _____

8. Approximately how many patients do you treat per week? _____

9. Approximately how many patients do you treat per week who have chronic **non-cancer** pain as a significant complaint? _____

10. Approximately what percentage of your time do you spend treating patients with **non-cancer** pain in your practice? _____ %

11. Approximately what percentage of these patients are **referred to you** by other caregivers? _____ %

What is the source of these referrals? Fill in the circle for all that apply, and place an asterisk (*) next to the source of **most** of your referrals.

O Primary care physician
O Specialist physician (not including emergency department doctors)
O Other non-MD caregiver (nurse, chiropractor, etc.)
O Emergency department
O Urgent care facility
O Other source, please specify _____

12. Approximately what percentage of these patients are **referred by you** to other caregivers? _____ %

Where do you send these referrals? Fill in the circle for all that apply, and place an asterisk (*) next to the place you send **most** of your referrals.

O Primary care physician
O Specialist physician (not including emergency department doctors)
O Other non-MD caregiver (nurse, chiropractor, etc.)
O Emergency department
O Urgent care facility
O Other source, please specify _____

13. Approximately what percentage of your patients with chronic **non-cancer** pain as a significant complaint have the following diagnoses? Use these as broad categories, not specific ICD-9 codes.

Low back pain _____ %
Headache, including migraines _____ %
Arthritis _____ %
Other bone and joint pain _____ %
Underlying medical conditions, such as angina _____ %
Other, please specify _____

14. Approximately what percentage of your patients who have chronic **non-cancer** pain as a significant complaint are:

Medicaid recipients?	____%
Medicare recipients?	____%
Dual eligible?	____%
Private pay/insurance (non-managed care)?	____%
Managed care?	____%

15. How often does a patient's insurance status affect your ability to use certain pain management modalities?

Psychiatric services	O always	O sometimes	O never
Spinal cord stimulator or other implantable device	O always	O sometimes	O never
Interventional (nerve block) procedure	O always	O sometimes	O never
Sustained release opiate preparation	O always	O sometimes	O never
Prescription drugs (versus over-the-counter medication)	O always	O sometimes	O never
Radiologic imaging procedures (MRI, CT scan)	O always	O sometimes	O never
EMG/nerve conduction studies	O always	O sometimes	O never

16. I ask my patients to rate their pain on a standardized scale at each visit.

O yes O no

17. I have **personally** experienced pain which required treatments with opioids.

O yes O no

Please fill in the circle that indicates how strongly you agree or disagree with each of the following statements based on the following scale:

1. Drug related side effects (*e.g.* constipation, nausea, sedation) are serious impediments to the long-term use of opioid for chronic **non-cancer** pain.

Strongly Disagree | | | | | | **Strongly Agree**

O 0 O 1 O 2 O 3 O 4 O 5 O 6

2. Development of tolerance is a serious impediment to the long term use of opioids for chronic **non-cancer** pain.

O 0 O 1 O 2 O 3 O 4 O 5 O 6

3. Physical dependence is a serious impediment to the long-term use of opioids for chronic **non-cancer** pain.

O 0 O 1 O 2 O 3 O 4 O 5 O 6

4. Concerns regarding addiction are a serious impediment to the long-term use of opioids for chronic **non-cancer** pain.

O 0 O 1 O 2 O 3 O 4 O 5 O 6

5. Regulatory pressures are a serious concern restricting my prescription of opioids for patients with chronic **non-cancer** pain.

O 0 O 1 O 2 O 3 O 4 O 5 O 6

6. Possible criminal prosecution and/or other legal consequences are a serious concern restricting my prescription of opioids for patients with chronic **non-cancer** pain.

O 0 O 1 O 2 O 3 O 4 O 5 O 6

7. I feel confident with my use of opioid medication in treating patients with chronic **non-cancer** pain.

O 0 O 1 O 2 O 3 O 4 O 5 O 6

8. I feel confident with my use of opioid medications in treating any pain condition.

Strongly Disagree						**Strongly Agree**
O 0	O 1	O 2	O 3	O 4	O 5	O 6

9. A prior history of substance abuse and/or chemical dependence is an absolute contraindication for the use of opioid medication in the following situations:

Pain due to acute trauma or surgery

O 0	O 1	O 2	O 3	O 4	O 5	O 6

Pain due to cancer

O 0	O 1	O 2	O 3	O 4	O 5	O 6

Chronic **non-cancer** pain

O 0	O 1	O 2	O 3	O 4	O 5	O 6

10. Most of my colleagues share my professional opinion regarding use of opioids for patients with **non-cancer** pain.

O 0	O 1	O 2	O 3	O 4	O 5	O 6

11. I believe that a pain specialist is the most appropriate person to prescribe opioids for my patients with chronic **non-cancer** pain.

O 0	O 1	O 2	O 3	O 4	O 5	O 6

12. Once a stable opioid regimen is established, a pain specialist is the most appropriate person to continue to prescribe opioids for a patient with chronic **non-cancer** pain.

O 0	O 1	O 2	O 3	O 4	O 5	O 6

13. Asking a patient to rate his/her pain at each visit is helpful in guiding analgesic therapy.

O 0 O 1 O 2 O 3 O 4 O 5 O 6

14. How frequently do you prescribe opioid medications for the treatment of pain?

Never **Always**

O 0 O 1 O 2 O 3 O 4 O 5 O 6

15. How frequently do you prescribe chronic (maintenance) opioids for chronic **non-cancer** pain?

Never **Always**

O 0 O 1 O 2 O 3 O 4 O 5 O 6

16. What do you consider the most important concern in assessing the effectiveness of opioid treatment?

Symptomatic relief of pain

Least Important **Most Important**

O 0 O 1 O 2 O 3 O 4 O 5 O 6

Improvement in functioning

Least Important **Most Important**

O 0 O 1 O 2 O 3 O 4 O 5 O 6

Thank you for your participation. Please mail or fax back to the address listed on the front page. If faxing, please remember to fax both sides of the survey for a total of seven (7) pages. If mailing, please fold the survey so that the return address (on the back of this page) will show in the window of the enclosed envelope.

Additional Survey Tables

Specialist Sample

OCCUPATION	*Frequency*	*Percent*	*Cum. Percent*
Attending	31	35.6	35.6
Private Practitioner	36	41.4	77.0
Managed Care Practice	6	6.9	83.9
Other	14	16.1	100.0
Total	87	100.0	100.0

Primary Care Sample

OCCUPATION	*Frequency*	*Percent*	*Cum. Percent*
Attending	17	21.0	21.0
Private Practitioner	43	53.1	74.1
Managed Care Practice	7	8.6	82.7
Other	14	17.3	100.0
Total	81	100.0	100.0

Specialist Sample

AGE	*Frequency*	*Percent*	*Cum. Percent*
20-30	1	1.2	1.2
31-40	29	33.7	34.9
41-50	35	40.7	75.6
>50	21	24.4	100.0
Total	87	100.0	100.0

Primary Care Sample

AGE	*Frequency*	*Percent*	*Cum. Percent*
31-40	19	23.5	23.5
41-50	40	49.4	72.8
>50	22	27.2	100.0
Total	81	100.0	100.0

Specialist Sample

NUMBER YEARS RESIDENCY	Frequency	Percent	Cum. Percent
2-5	43	76.8	76.8
6-10	11	19.6	96.4
> 10	2	3.6	100.0
Total	56	100.0	100.0

Primary Care Sample

NUMBER YEARS RESIDENCY	Frequency	Percent	Cum. Percent
2-5	47	92.2	92.2
6-10	3	5.9	98.0
> 10	1	2.0	100.0
Total	51	100.0	100.0

Specialist Sample

SPECIALTY	Frequency	Percent	Cum. Percent
Anesthesiology	34	39.1	39.1
Medicine	4	4.6	43.7
PM&R	18	20.7	64.4
Surgery	6	6.9	71.3
Other	25	28.7	100.0
Total	87	100.0	100.0

Primary Care Sample

SPECIALTY	Frequency	Percent	Cum. Percent
Medicine	56	69.1	69.1
Surgery	2	2.5	71.6
Other	23	228.4	100.0
Total	81	100.0	100.0

Specialist Sample

CONTINUING EDUCATION ON PAIN	*Frequency*	*Percent*	*Cum. Percent*
Yes	76	84.9	84.9
No	13	15.1	100.0
Total	86	100.0	100.0

Primary Care Sample

CONTINUING EDUCATION ON PAIN	*Frequency*	*Percent*	*Cum. Percent*
Yes	51	65.4	65.4
No	27	34.6	100.0
Total	78	100.0	100.0

Specialist Sample

SOURCE OF MOST OF EDUCATION	*Frequency*	*Percent*	*Cum. Percent*
Clinical experience	39	44.8	44.8
Continuing education	14	16.1	60.9
Medical school	3	3.4	64.4
Personal experience	6	6.9	71.3
Residency	17	19.5	90.8
Other	8	9.2	100.0
Total	87	100.0	100.0

Primary Care Sample

SOURCE OF MOST OF EDUCATION	*Frequency*	*Percent*	*Cum. Percent*
Clinical experience	40	49.4	49.4
Continuing education	17	21.0	70.4
Medical school	1	1.2	71.6
Personal experience	3	3.7	75.3
Residency	15	18.5	93.8
Other	5	6.2	100.0
Total	81	100.0	100.0

Specialist Sample

FORMAT OF CONTINUING EDUCATION	*Frequency*	*Percent*	*Cum. Percent*
Formal course	18	20.7	20.7
Lecture or presentation	27	31.0	51.7
Written materials	20	23.0	74.7
Personal research (library)	16	18.4	93.1
Other	6	6.9	100.0
Total	87	100.0	100.0

Primary Care Sample

FORMAT OF CONTINUING EDUCATION	*Frequency*	*Percent*	*Cum. Percent*
Formal course	16	19.8	19.8
Lecture or presentation	31	38.3	58.0
Written materials	19	23.5	81.5
Personal research (library)	13	16.0	97.5
Other	2	2.5	100.0
Total	81	100.0	100.0

Specialist Sample

DO YOU HAVE PATIENTS RATE PAIN?	*Frequency*	*Percent*	*Cum. Percent*
Yes	54	65.1	65.1
No	29	34.9	100.0
Total	83	100.0	100.0

Primary Care Sample

DO YOU HAVE PATIENTS RATE PAIN?	*Frequency*	*Percent*	*Cum. Percent*
Yes	7	9.7	9.7
No	65	90.3	100.0
Total	72	100.0	100.0

Appendix F
Notes and References from Interviews with Members of the Virginia Chiropractic Association

Dr. Scott Banks, Eastern Virginia representative to the Virginia Chiropractic Association, 757.463.0193

Dr. Banks stated that Medicaid was the only insurance product in Virginia that did not reimburse chiropractors, despite the fact that chiropractic services were effective for chronic pain, and reimbursable under the federal Medicare program. It was his belief that a majority of state Medicaid programs did cover chiropractic services, and that the reason Virginia did not was because of the suspicion that coverage would induce demand and incur more overall costs for the Medicaid program. Although the traditional medical community had eschewed chiropractic services in the past, Dr. Banks stated that today's chiropractors worked in conjunction with many primary care physicians and specialists.

Back pain, according to Dr. Banks, "fits" better with chiropractic services because of its often acute initial presentation but chronic nature. Allopathic treatment modalities are designed for episodic acute events, and focus on covering up or masking the pain rather than treating the cause of the pain itself. As a result, chiropractic care offers a nonpharmaceutical alternative to those who suffer from chronic pain, often with better long-term outcomes. Dr. Banks cited several studies (see enclosed bibliography) that demonstrated the cost-effectiveness, safety, and efficacy of chiropractic care.

Dr. Christopher Frey, Virginia Chiropractic Association Legislative Chair, 703.385.2990.

Dr. Frey had contacted DMAS back in March with a request for information about the SJR 368 legislation and its subsequent report. I contacted Dr. Frey in April and he said he would forward information about the efficacy of chiropractic services in the management of pain. I received the information in late June, 1997 (see bibliography), and followed up with a telephone interview in July.

Dr. Frey echoed Dr. Banks' sentiments about the appropriateness of chiropractic care for acute and chronic pain, especially low back pain. The Foundation for Chiropractic Education and Research (FCER) brochure (see attachment) cites an AHCPR clinical practice guideline for acute low back problems in adults, which includes spinal manipulation in conjunction with nonpresecription analgesics and mild exercise. Because chiropractors have always been committed to healing through spinal manipulation, Dr. Frey believes the AHCPR guideline is an endorsement of chiropractic services.

In addition, Dr. Frey asserted that chiropractic services stress enhanced functional status over simple pain relief, which might assist Medicaid enrollees with problems of chronic pain seek and retain employment. Because of these reasons, Dr. Frey and his professional

organization will continue to lobby for the inclusion of chiropractic services in the Medicaid program.

Dr. Gene Paouncic, member of the Virginia Society of Chiropractors, 540.886.4468.

Dr. Paouncic is a chiropractor practicing in Staunton, Virginia. He recently moved to central Virginia from Atlanta, Georgia. Dr. Paouncic currently sees 200 patient visits/week, and he accepts patients regardless of their ability to pay. Dr. Paouncic contacted the DMAS office about SJR 368 and asked to have an opportunity for input into the study.

When contacted, Dr. Paouncic stated that he and his professional organization, the Virginia Society of Chiropractors, felt that chiropractic care was appropriate care for anyone needing pain control and management, including the Medicaid population. According to Dr. Paouncic, recent studies from AHCPR ranked the therapies for acute back pain, and within those modalities, spinal manipulation was considered to be one of the most effective treatments. In addition, the "Manga Report," an independent study commissioned by the Ontario (Canada) Ministry of Health assessing the efficacy of treatments for low-back pain (LBP), recommended that that the management of LBP be moved from Medical Doctors to Doctors of Chiropractic and that hospital privileges be extended to D.C.s. Drawing on these two reports, and coupled with the overall low cost and patient-centered, "human" side of chiropractic, Dr. Paouncic felt that Medicaid recipients could benefit from chiropractic services.

States and Territories that provide for chiropractic services under Medicaid (DHHS 1995)

American Samoa	Mississippi
Arkansas	Nebraska
California	New Hampshire
Connecticut	New Jersey
Florida	North Dakota
Idaho	Ohio
Indiana	Oregon
Iowa	Pennsylvania
Kansas	South Dakota
Louisiana	Texas
Maine	Utah
Michigan	Vermont
Minnesota	West Virginia
North Carolina	Wisconsin

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Appendix G
Limitations of the Analysis of the Medicaid Claims Data

The data reported in Medicaid claims file are subject to limitations because of limitations on what is measured and potential errors in the computerized data. The biggest limitation in addressing the main questions is that there is no good measurement available of patient status, both for type of disease and severity of disease, on initial presentation. The analysis must, therefore, depend on the consistency of physician-recorded diagnoses, and such labeling activities are at least partly subjective. Even if diagnoses are consistently recorded perfectly, diagnosis does not reflect all of the dimensions of patient severity or need for treatment. An important related limitation is the absence of a clinically-based definition of chronic versus acute disease, or a direct outcome measure to gauge the success of treatment.

There are also potential limitations because of data errors and missing values in the data systems. The data used are financial transactions data, which contain separate records to correct previous mistakes. Corrections do not occur at the same time as initial entries, and the use of a rigid time limit of twelve months means that some entries destined to be corrected later are not corrected in this analysis, while some of the transactions included are corrections of transactions that occurred before the time period of measurement. The analysis has not attempted to purge out these corrections because of the computational burden and because including the corrections is expected to yield accurate point estimates of total costs. If the data systems were reasonably stable over the time period, the volume of corrections erroneously included should be approximately equal to the volume of corrections excluded because they occurred after the expiration of the twelve-month follow-up period. An evaluation of the impact of corrections on the overall results indicates that their impact is immaterial. For example, of 574,379 drug prescriptions consumed by back pain patients during a twelve-month period, only 2,659 (0.4%) were corrections. The magnitude of error due to this type of data error should be less than 1%.

Analysis of the impact of physician specialty is hampered by the large number of missing values or zero's in the practitioner data file. In addition, the values for the National Drug Code have at least some systematic errors, probably because of numeric/character conversions and conversions from COBOL to SAS systems. The National Drug Code is an 11 digit number with punched 0's. The DMAS data does not contain leading 0's, and it appears that some values with leading zeros have been truncated, leading to contaminated values. If these data are to be used for further program evaluation, more attention must be paid to data quality.