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Medicare Part B Claims for Chiropractic Spinal Manipulation, 1998–2004

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Abstract

Objective—The objective of this study was to examine the volume and rate of Medicare part B claims for chiropractic spinal manipulation longitudinally from 1998 to 2004.

Methods—A descriptive retrospective analysis was performed on Medicare part B claims from 1998 to 2004 using the *Medicare Part B Standard Analytical Variable Length File*. Using a 5% random sample of Medicare part B claims, the total number of claims were determined for chiropractic spinal manipulation procedures, and the rate of chiropractic spinal manipulation procedures per 1,000 beneficiaries.

Results—From 1998 through 2003 the number of CSM claims increased by 38% (from 824,249 total claims in 1998 to 1,133,872 in 2003) followed by a 24% decline from 2003 to 2004. The rate of total chiropractic spinal manipulation claims rose 29% from 649 claims per 1,000 beneficiaries per year in 1998 to a high of 839 claims per 1,000 beneficiaries per year in 2003 and then declined by 25% to 632 claims per 1,000 beneficiaries per year in 2004.

Conclusion—Medicare part B claims for chiropractic spinal manipulation increased significantly from 1998 to 2003 and then abruptly declined from 2003 to 2004. Estimates for 2004 are at variance with earlier published estimates.

Keywords

Manipulation; Chiropractic; Medicare Part B; Utilization; Health Resources

INTRODUCTION

The Medicare Payment Advisory Commission estimates that in the first three decades of the 21st century the total number of Medicare beneficiaries will nearly double, from approximately 40 million to 79 million persons.¹ Neck and back pain are common ailments

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

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among Medicare beneficiaries and prior studies have shown a significant increase in the prevalence and economic costs associated with these conditions in the general adult population.^{2, 3} The American Geriatric Society has recommended chiropractic care as a non-pharmacologic management option for patients with chronic pain,⁴ yet little is known about the utilization of chiropractic care by the rapidly growing elderly segment of the US population.

Chiropractic Spinal manipulation (CSM) is the treatment modality most commonly used by US chiropractors to treat neck and back pain, and since 1972⁵ has been the sole procedure reimbursable to chiropractors under the US Medicare system. Cross-sectional studies have demonstrated rates of utilization of chiropractic care in the general adult US population,^{6, 7} but few studies have investigated trends in utilization of chiropractic care in the geriatric population. Therefore this study sought to investigate longitudinal trends in the utilization of CSM among US Medicare beneficiaries.

METHODS

This study employed a serial cross-sectional design. Medicare Part B claims data were analyzed retrospectively to estimate the total annual number and rate of use of CSM procedures for Medicare beneficiaries from 1998 through 2004. The data used in this study was accessed at The Center for Health Policy Research of The Dartmouth Institute for Health Policy and Clinical Practice, under a data user agreement with The Centers for Medicare and Medicaid Services. This study was approved by the Committee for Protection of Human Subjects, Dartmouth College. We analyzed the *Medicare Part B Standard Analytical Variable Length File*, a database abstracted from a 5% representative sample of all paid Medicare Part B (office visit) claims. The 5% sample was randomly generated based upon the last two digits of the the social security number portion of the claim number. The sample was stratified by year, based upon date of service.

To generate estimates of CSM procedures performed in 1998–2004, we queried the database for the three procedure codes recognized by Medicare for use by chiropractors. Current Procedural Terminology (CPT) codes 98940, 98941, and 98942 specify the number of spinal regions in which CSM is performed in one patient encounter. The CPT code 98940 denotes manipulation of one to two spinal regions per encounter, code 98941 denotes manipulation of three to four regions, and code 98942 denotes manipulation of five regions. The coding guidelines define the five spinal regions as follows:

1. cervical (including the atlanto-occipital joint)
2. thoracic (including costovertebral and costotransverse joints)
3. lumbar
4. sacral
5. pelvic (sacroiliac)⁸

To determine annual rates of CSM procedures per Medicare beneficiary, the number of CSM claims in our 5% representative sample were divided by the total number of Medicare beneficiaries as of the 30th of June, for each year from 1998 to 2004.

RESULTS

From 1998 through 2003 the number of CSM claims increased by 38% (from 824,249 total CSM claims in 1998 to 1,133,872 in 2003) followed by a 24% decline from 2003 to 2004 [Figure 1]. When the three CPT codes were examined individually, we found that while

claims for CPT code 98940 remained relatively stable at approximately 440,000 annual claims between 1998 and 2003, claims for code 98941 increased by 78% (from 332,307 claims in 1998 to 590,416 claims in 2003), and claims for code 98942 increased by 168% (from 44,059 claims in 1998 to 118,243 claims in 2003) [Table 1]. Claims for all three codes fell precipitously from 2003–2004, with claims for codes 98940 falling by 29%, 98941 by 22%, and 98942 by 21%.

The total number of CSM claims rose from 649 claims per 1,000 beneficiaries per year in 1998 to a high of 839 claims per 1,000 beneficiaries per year in 2003 (a 29% increase over five years), and then declined by 25% in one year to a new low of 632 claims per 1,000 beneficiaries per year in 2004 [Figure 2]. It is important to note that the numerator in these rates is number of chiropractic claims, not number of unique chiropractic users.

DISCUSSION

Our analysis revealed a steady increase in total claims for CSM from 1998 to 2003, followed by a sharp decline from 2003 to 2004. Claims for all three procedures fell sharply from 2003–2004. From 1998 to 2003 claims for codes 98941 and 98942 grew gradually, while claims for code 98940 remained relatively stable. During this time period, 98941 replaced 98940 as the most commonly billed CPT code for CSM. Our data cannot explain the reason for the increase in 98941 and 98942 claims; however, we theorize that this could be due to either (1) the increased complexity of chronic musculoskeletal conditions coupled with the aging of the population or (2) changes in the billing practices of US chiropractors as a result of reimbursement constraints. The extent to which the rate of utilization of CSM is subject to provider-related factors is unknown, but the phenomenon of supply-sensitive care has been widely observed in medical care.⁹

Analysis for rates of claims per 1,000 beneficiaries demonstrated a longitudinal pattern that essentially paralleled the pattern for total claim volumes. As noted above, the numerator in the rates presented here represents claims, not patients. Patients receiving chiropractic care typically receive a series of treatments which often span several weeks or months. Thus the total number of patients receiving CSM in any given year is expected to be appreciably lower than the number of manipulative procedures performed. Wolinsky and colleagues analyzed a sample of Medicare claims data from 1991–1996 and found the mean annual prevalence rate of chiropractic utilization among Medicare beneficiaries to be approximately 4.6%.¹⁰ An estimate of the number of CSM procedures per unique chiropractic user can be calculated as: $[(\text{Total Procedures}) / (\text{Total Beneficiaries} \times 0.046)]$. Application of this formula to our 2003 statistics yields a rate of 18.25 CSM procedures per chiropractic user. Based upon an analysis of claims data from 2001, the US government reported a rate of 6% chiropractic usage among Medicare beneficiaries.¹¹ Insertion of the 6% user rate into our formula yields a rate of 14 CSM procedures per chiropractic user.

The increase in chiropractic CSM claims from 1998 to 2003 corroborates the results of previous studies using the Medical Expenditure Panel Survey (MEPS).^{12–14} Although the chiropractic workforce has remained stable from 1996 to 2005 and a decline in new chiropractic school graduates is evident, national expenditures for chiropractic care have grown.¹³ From 1997 to 2006, inflation-adjusted national expenditures for chiropractic care rose 56% from \$3.8 billion to \$5.91 billion. Between 2000 and 2003 the estimated total number of US adults who saw a chiropractor also rose 56% from 7.7 million in 2000 to 12.1 million in 2003 and has remained stable from 2003 to 2006.

The sharp drop-off in Medicare claims in 2004 reported here contrasts with these trends, although the MEPS statistics represent overall expenditures that are not restricted to

Medicare, and rates of utilization of CSM by Medicare beneficiaries may be subject to factors not operant in other payor groups, resulting in discrepancies between utilization of chiropractic care in general, and utilization under Medicare. However, in 2009 the Office of inspector General (OIG) published estimates of allowed chiropractic claims under Medicare that also illustrated a growth trend that was not interrupted in 2004.¹⁵

Table 2 compares our results with the OIG estimates¹⁵ of total annual allowed chiropractic claims for Medicare Part B from 2001 to 2004. The OIG figures were derived from analysis of a 1% sample of beneficiaries, while the current study analyzed a 5% sample, which might be expected to provide a more sensitive and stable estimate. However our results for 2004 diverge sharply from the trend illustrated by the OIG estimates. Rather than a sharp decline, the OIG estimates show continued gradual growth in 2004 and 2005. It is possible that the discrepant results reported here for 2004 resulted from error in data collection or analysis. Our analysis only accounts for paid claims, and does not include non-covered services for which Medicare recipients paid out of pocket. The Centers for Medicare and Medicaid Services issued a ruling effective October 1, 2004, requiring that claims for medically necessary services include the active treatment (AT) procedure code modifier.¹⁶ The active treatment modifier indicates that the CSM procedure was used for corrective treatment of an acute or chronic condition, as opposed to maintenance therapy. This ruling may have had the effect of temporarily depressing the volume of paid claims for chiropractic care in 2004. Because our data reflects only paid claims, initial failure to adhere to the new requirement for use of the AT modifier may have resulted in many claims that remained unpaid at the time our data was collected. Subsequent analyses utilizing a 20% sample of Medicare beneficiaries should yield more stable and accurate estimates. Future studies may also determine if the use of CSM by other professionals such as physical therapists and osteopaths is impacting the chiropractic profession's market share among Medicare beneficiaries.

Limitations

This study was limited by several factors that must be acknowledged. A larger sample would have yielded more stable estimates of procedure use, but given the very large size of the claims database, the use of only a 5% sample was not a likely a source of bias. This study analyzed Part B claims only, and thus did not include hospital-based claims for CSM. More importantly, the study was limited by factors inherent in the analysis of claims data, including the possibility that inconsistent and inaccurate information may be entered into claim forms. Medicare reimbursement policies for chiropractic sharply limit the scope of conditions treated and procedures performed. CPT codes 98940, 98941, and 98942 are the only procedure codes for which Medicare routinely reimburses chiropractors.

The three codes analyzed in this study are specifically designated as codes for "chiropractic manipulative treatment".⁸ Not included in our analysis were codes for spinal manipulation used by other provider types, such as osteopathic manipulation codes 98925 – 98929. It has been estimated that 98% of Medicare claims for CSM procedures are filed by chiropractors.¹⁰ This study is intended to provide a close approximation of the volume and rate of use of CSM in Medicare patient office visits from 1998 to 2004.

CONCLUSION

From 1998 through 2003, the total number of CSM claims and CSM claims per 1,000 Medicare part B beneficiaries steadily increased, and then decreased by 25% in 2004. The drop-off in 2004 is inconsistent with previously published reports. Future studies will examine the reported 2004 decline in CSM Medicare claims more closely.

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References

1. The Medicare Payment Advisory Commission. Medicare beneficiary demographics. MedPAC Data Book. [Accessed April 19, 2010].
[http://www.medpac.gov/publications/congressional_reports/Jun04DataBookSec1.pdf]
2. Martin BI, Deyo RA, Mirza SK, et al. Expenditures and health status among adults with back and neck problems. JAMA Feb 13;2008 299(6):656–664. [PubMed: 18270354]
3. Martin BI, Turner JA, Mirza SK, Lee MJ, Comstock BA, Deyo RA. Trends in Health Care Expenditures, Utilization, and Health Status Among US Adults With Spine Problems, 1997–2006. Spine Aug 11;2009 34:2077–2084. [PubMed: 19675510]
4. American Geriatrics Society. The management of chronic pain in older persons: AGS Panel on Chronic Pain in Older Persons. J Am Geriatr Soc 1998;46(5):635–651. [PubMed: 9588381]
5. United States Congress. HR 1: Social Security Amendments for 1972. Washington, DC: US Government Printing Office; 1972.
6. Barnes PM, Bloom B, Nahin RL. Complementary and alternative medicine use among adults and children: United States, 2007. National health statistics reports 2009;(12):1–23. [PubMed: 19771719]
7. Barnes PM, Powell-Griner E, McFann K, Nahin RL. Complementary and alternative medicine use among adults: United States, 2002. Advance Data 2004;(343):1–19. [PubMed: 15188733]
8. Beebe, M.; Dalton, JA.; Espronceda, M.; Evans, DD.; Glenn, RL. CPT 2008 Professional Edition. 4. Chicago: American Medical Association; 2008. (October 30, 2007)
9. Wennberg, JE. Medical Technology Leadership Forum. San Francisco, CA: 2008. Evidence-Based Medicine: Vehicle to Value and Efficiency?.
10. Wolinsky F, Liu L, Miller T, et al. The use of chiropractors by older adults in the United States. Chiropr Osteopat Sep 6;2007 15(12)
11. Office of the Inspector General. Department of Health and Human Services. Chiropractic Services in the Medicare Program: Patient Vulnerability Analysis. Washington, D.C: 2005.
12. Davis, MA.; Davis, A.; Goertz, C. The supply and demand of United States chiropractors from 1996 to 2006: past trends and future ramifications. Association of Chiropractic Colleges and Research Agenda Conference; Las Vegas, NV. 2009.
13. Davis MA, Davis AM, Luan J, Weeks WB. The supply and demand of chiropractors in the United States from 1996 to 2005. Alternative Therapies in Health & Medicine 2009;15(3):36–40. [PubMed: 19472863]
14. Davis MA, Sirovich BE, Weeks WB. Utilization and Expenditures on Chiropractic Care in the United States from 1997 to 2006. Health Serv Res. Dec 4;2009
15. Office of Inspector General. Inappropriate Medicare Payments for Chiropractic Services. Washington, DC: Department of Health and Human Services; 2009.
16. Medicare Learning Network. Revised Requirements for Chiropractic Billing of Active/Corrective Treatment and Maintenance Therapy, Full Replacement of CR3063. [Accessed September 1st, 2009]. http://www.cms.hhs.gov/MLNMattersArticles/downloads/MM3449.pdf

Figure 1.
Total Medicare Part B Claims for Chiropractic Spinal Manipulation in 5% Sample, 1998–2004

Figure 2.
Total Medicare Part B Claims for Chiropractic Spinal Manipulation per 1,000 Beneficiaries, 1998–2004

Chiropractic Spinal Manipulation Medicare Part B Claims and Medicare Part B Beneficiaries in 5% Representative Sample, 1998 to 2004

Table 1

	1998	1999	2000	2001	2002	2003	2004
Medicare Part B Population	1,269,078	1,257,802	1,269,507	1,283,310	1,324,880	1,350,849	1,359,157
CPT Code:							
98940 (CSM 1-2 Spinal Regions)	447,883	420,710	444,415	455,931	446,415	425,213	303,402
98941 (CSM 3-4 Spinal Regions)	332,307	354,366	397,157	441,777	517,484	590,416	461,720
98942 (CSM 5 Spinal Regions)	44,059	54,641	66,937	81,289	100,771	118,243	93,752
Total CSM Procedures	824,249	829,717	908,509	978,997	1,064,670	1,133,872	858,874
Procedures per 1,000 Beneficiaries	649	660	716	763	804	839	632

Abbreviations: CPT, Current Procedural Terminology; CSM, chiropractic spinal manipulation

Table 2

Estimates of Total Allowed Chiropractic Claims for Medicare Part B, 2001 – 2006

Year	OIG 2009 *	Whedon & Davis **
2001	15,920,500	19,579,940
2002	18,111,800	21,293,400
2003	19,407,300	22,677,440
2004	21,200,000	17,177,480
2005	23,075,800	n/a
2006	22,964,790	n/a

Abbreviations: OIG, Office of inspector General; n/a, not applicable

* results from 1% sample, multiplied by 100

** results from 5% sample, multiplied by 20