

# MEDICARE'S DEMONSTRATION OF EXPANDED COVERAGE FOR CHIROPRACTIC SERVICES: LIMITATIONS OF THE DEMONSTRATION AND AN ALTERNATIVE DIRECT COST ESTIMATE

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## ABSTRACT

**Objective:** The purposes of this study were to examine the direct costs associated with Medicare's 2005-2007 "Demonstration of Expanded Coverage of Chiropractic Services" (Demonstration) and their drivers, to explore practice pattern variation during the Demonstration, and to describe scenarios of cost implications had provider behavior and benefit coverage been different.

**Methods:** Using Medicare Part B data from April 1, 2005, and March 31, 2007, and 2004 Rural Urban Continuum Codes, we conducted a retrospective analysis of traditionally reimbursed and expanded chiropractic services provided to patients aged 65 to 99 years who had a neuromusculoskeletal condition. We compared chiropractic care costs, supply, and utilization patterns for the 2-year periods before, during, and after the Demonstration for 5 Chicago area counties that participated in the Demonstration to those for 6 other county aggregations—urban or rural counties that participated in the Demonstration; were designated comparison counties during the Demonstration; or were neither participating nor comparison counties during the Demonstration.

**Results:** When compared with other groups, doctors of chiropractic in 1 region (Chicago area counties) billed more aggressively for expanded services and were reimbursed significantly more for traditionally reimbursed chiropractic services provided before, during, and after the Demonstration. Costs would have been substantially lower had doctors of chiropractic in this 1 region had responded similarly to those in other demonstration counties.

**Conclusion:** We found widespread geographic variation in practice behavior and patterns. Our findings suggest that Medicare might reduce the risk of accelerated costs associated with the introduction of a new benefit by applying appropriate limits to the frequency of use and overall costs of those benefits, particularly in highly competitive markets. (*J Manipulative Physiol Ther* 2013;36:468-481)

**Key Indexing Terms:** *Health Care Economics and Organizations; Legislation as Topic; Medicare; Insurance Coverage; Physician's Practice Patterns; Chiropractic; Costs and Cost Analysis*

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Spinal pain is increasingly frequent in older US adults, and its treatment is costly. A recent study of Medicare beneficiaries found an "epidemic" rise in the frequency of the most common type of low back pain (nonspecific low back pain) accompanied by dramatic increases in health care charges.<sup>1</sup> Up to 96% of complaints of chronic low back pain in older adults can be managed nonsurgically.<sup>2</sup> Hence, there is a pressing need to identify and use appropriate, cost-effective, and conservative treatments wherever feasible.<sup>1</sup>

Chiropractic physicians are licensed health professionals who typically provide treatment for conditions that cause spinal pain.<sup>3</sup> Randomized controlled clinical trials have demonstrated that spinal manipulation, as performed by doctors of chiropractic (DCs), is an effective, conservative

treatment option for certain types of low back and neck pain and for some headaches.<sup>4-6</sup> Several clinical trials also support the effectiveness of combined chiropractic therapies (spinal manipulation plus other chiropractic treatments).<sup>7,8</sup> The American College of Physicians and the American Pain Society<sup>9</sup> as well as the Task Force of Neck Pain and its Associated Disorders<sup>10</sup> recommend spinal manipulation for the treatment of certain spinal pain conditions, and the American Geriatric Society has found chiropractic care to be an appropriate method for managing chronic back pain in older adults.<sup>11</sup> Finally, several reports suggest that patients who used chiropractic for back and neck problems have lower annual per-capita spine specific and total health care costs.<sup>12-14</sup>

#### CHIROPRACTIC UNDER MEDICARE AND THE DEMONSTRATION PROJECT

In 1972, Congress mandated chiropractic care coverage as a Medicare benefit but limited that coverage to “treatment by means of manual manipulation of the spine,”<sup>15</sup> a limitation that remains in place today. However, all states allow a broader scope of chiropractic practice, and many mandate coverage for a spectrum of chiropractic services. These include evaluation and management (E&M); physical medicine; and rehabilitation modalities and procedures, imaging, and some laboratory services.<sup>16</sup> Thus, DCs provide a number of services beyond spinal manipulation.<sup>17</sup> Medicare-reimbursed chiropractic care has increased considerably over the last 2 decades, although it slowed with the recent recession.<sup>18,19</sup> That chiropractic care users concurrently seek traditional medical care for treatment of back pain<sup>20</sup> suggests that a new coordinating role for DCs might achieve overall efficiencies in health services utilization.<sup>21,22</sup>

Efforts by the chiropractic profession led Congress to fund a demonstration project designed to examine the cost impact of expanding Medicare funding of chiropractic services. The Demonstration of Expanded Coverage of Chiropractic Services Project (Demonstration) was conducted between April 1, 2005, and March 31, 2007. Using a before-after design, Medicare expenditures in counties in 4 demonstration areas were each compared with 2 matched comparison counties for the year before the Demonstration and the 2-year period of the Demonstration itself. The analysis was based on an assumption that expansion of services would be “budget neutral” and that increased chiropractic costs associated with expanded services might be offset with reduced overall medical care services. However, although the Demonstration revealed high levels of patient satisfaction with the expanded services, it showed an increase in costs to Medicare compared with chosen comparison sites: the report estimated that expanded coverage of chiropractic services was associated with a

\$34.8 million direct increase in the costs of chiropractic services and a \$15.2 indirect increase in Medicare costs among chiropractic users in the demonstration counties when compared with comparison counties. The investigators projected that a similar nationwide expansion of chiropractic services would cost Medicare between \$582 million and \$1.15 billion annually.<sup>23</sup>

There are 2 reasons to reassess these findings. First, Demonstration counties in Chicago and its suburbs accounted for \$49 million of the \$50 million total increase in Medicare Part B expenditures;<sup>23</sup> therefore, we wanted to explore geographic variation in chiropractic practice patterns during the Demonstration period. Second, the Demonstration expanded reimbursement for a very broad range of services provided by DCs. Because policymakers might reasonably limit Medicare coverage to a narrower range of services, we wanted to examine the effects of limiting coverage options on total cost increases.

Therefore, the purposes of this study were to examine the direct costs associated with Medicare’s 2005-2007 Demonstration Project and their drivers, to explore practice pattern variation during the Demonstration, and to describe counterfactual scenarios of cost implications had provider behavior and benefit coverage been different.

#### METHODS

We used serial cross-sectional analyses of Medicare administrative data that were acquired and analyzed under a data use agreement with the Centers for Medicare and Medicaid Services (DUA 22653). We restricted our analysis to Medicare beneficiaries who were 65 to 99 years old on January 1 of each study year and who were eligible to obtain chiropractic services by virtue of being enrolled in Medicare Part B for at least 1 month during each study year. Because chiropractic services are reimbursed through Medicare Part B, we limited our analysis of direct costs to Medicare Part B expenditures. To develop an aggregated analytic file containing information on beneficiary and provider demographics and Medicare Part B claims, we merged data from multiple files using unique beneficiary and provider identifiers. We examined only claims originating in the 50 US states and the District of Columbia, and we excluded un-allowed and duplicate claims. We aggregated Medicare claims data into 3 periods: a pre-demo period that included the 2 years before the Demonstration (and encompassed April 1, 2003, to March 31, 2005), a demo period that included the 2 years during the Demonstration (April 1, 2005, to March 31, 2007), and a post-demo period that included the 2 years after the Demonstration (April 1, 2007 to March 31, 2009).

During the demo period, for chiropractic services (defined as Medicare bills that had a provider code of 35),

we examined Medicare's 100% sample of claims in demonstration and matched comparison sites. For all other claims in the demo period and for all claims in the pre-demo and post-demo periods, we analyzed a 20% representative sample of claims. To generate 100% estimates from the representative sample, we multiplied results by 5. We considered DCs who billed at least \$1 for any Medicare reimbursed chiropractic service to be "Medicare-active."

Because the Demonstration limited expanded reimbursement to care for patients with a neuromusculoskeletal (NMS) condition, we restricted the study population to Medicare beneficiaries with at least 1 primary diagnosis for an NMS condition (see [Appendix I](#) for a list of diagnoses that constitute those conditions—these represent conditions for which expanded services billing were allowed, and do not represent the full complement of NMS conditions). We defined "chiropractic users" as patients who generated more than \$1 in reimbursed Medicare bills in a given study year that were provided by a DC. We used 2004 Rural-Urban Continuum Codes (RUCCs)<sup>24</sup> to determine county level urban or rural status. Similar to the methods used in the Demonstration, we categorized all RUCCs of 1 or 2 (counties in a metro area of >250 000 people) as urban and all others (counties in metro areas of <250 000 people or counties in nonmetro areas) as rural.

We calculated Medicare Part B expenditures per capita in the county for traditionally reimbursed chiropractic services and chiropractic services that were expanded under the Demonstration. To calculate the supply of DCs who were active in Medicare in a geographic area, we summed the number of unique provider identification numbers who were reimbursed for a chiropractic claim during each period; we divided that by the number of chiropractic users to calculate the supply of DCs per chiropractic user. Finally, we aggregated *Current Procedural Terminology* codes for expanded chiropractic services to the following categories: extraspinal manipulation, evaluation and management, passive nonmanipulative therapies, active nonmanipulative therapies, x-rays, and testing (see [Appendix II](#)).

For analytic purposes, we grouped patients into 7 groups by US counties:

1. Patients who obtained chiropractic services in Chicago area demonstration counties (Chicago area demonstration counties), consisting of Cook, DuPage, Kane, Lake, and Will counties. These 5 counties are the same that were described as Chicago area counties in the final report of the Demonstration.<sup>23</sup> All Chicago area counties were in urban RUCCs.
2. Patients who obtained chiropractic services in urban demonstration counties outside the Chicago area demonstration counties (urban non-Chicago demonstration counties).
3. Patients who obtained chiropractic services in rural demonstration counties outside the Chicago area demonstration counties (rural non-Chicago demonstration counties).
4. Patients who obtained chiropractic services in urban matched comparison counties (urban comparison counties).
5. Patients who obtained chiropractic services in rural matched comparison counties (rural comparison counties).
6. Patients who obtained chiropractic services in urban US counties that were neither demonstration nor matched comparison counties.
7. Patients who obtained chiropractic services in rural US counties that were neither demonstration nor matched comparison counties.

We used small area analysis techniques<sup>25</sup> to generate descriptive statistics by county type and demonstration period. To compare results for Chicago area demonstration counties to those of other county groups, we used analysis of variance and independent *t* test analysis, weighted by the population of chiropractic care users during the relevant time frame and using robust SEs. Finally, we generated counterfactual estimates of what costs of expanded coverage might have been under different scenarios. We obtained permission from Dartmouth's Institutional Review Board (CPHS no. 23113) to conduct the study, and we used SAS (SAS Institute, Inc, Cary, NC) to perform the analyses.

## RESULTS

### Variations in Patient Population Sizes, Number and Density of DCs, and Annual Medicare Part B Expenditures per Beneficiary for Both Traditionally Reimbursed and Expanded Chiropractic Services

During the Demonstration, Chicago area demonstration counties accounted for 38% of all beneficiaries in demonstration counties who had an NMS condition and who generated at least \$1 in reimbursed Medicare bills for chiropractic care ([Table 1](#)). Chicago area counties contained 49% of DCs in all demonstration counties who were reimbursed by Medicare for traditionally reimbursed chiropractic services. The supply of Medicare-active DCs per 1000 patients with NMS diagnoses in Chicago area counties was approximately 29% higher than in non-Chicago area urban demonstration counties, approximately 16% higher than in urban comparison counties, and approximately 8% higher than in urban counties that were not involved in the demonstration project. Concentrations of DCs in rural counties were approximately one-half that in Chicago area demonstration counties. In Chicago area counties, mean annual traditionally reimbursed chiropractic services per patient during the demo period were 21%, 18%, and 24% higher than in urban non-Chicago area

**Table 1.** Comparison of 7 groups of Medicare beneficiaries between ages 65 and 99 years who had an NMS condition and generated at least \$1 of Medicare-reimbursed chiropractic care during the Demonstration

Group		Setting	No. of patients with an NMS diagnosis who obtained Medicare-reimbursed chiropractic care	Total Medicare-active DCs and number per 1000 patients	Mean chiropractic expenditures for traditionally reimbursed services per patient per year <sup>a</sup>	Mean chiropractic expenditures for expanded services per patient per year <sup>a</sup>
Chicago	Patients who generated chiropractic claims in one of the Chicago area counties	Urban	15 736	2 302 (146)	\$332	\$311
Non-Chicago demonstration counties	Patients who generated chiropractic claims in one of the other demonstration counties	Urban	12 917	1 457 (113)	\$275	\$89
		Rural	12 725	932 (73)	\$241	\$81
Comparison counties	Patients who generated chiropractic claims in one of the matched comparison counties	Urban	26 255	3 314 (126)	\$281	
		Rural	10 161	845 (83)	\$242	
Other US counties	Patients who generated chiropractic claims in counties that were neither matched comparison nor intervention counties	Urban	379 611	51 115 (135)	\$267	
		Rural	306 139	22 160 (81)	\$217	

DC, doctor of chiropractic; NMS, neuromusculoskeletal.

<sup>a</sup> Chicago results are statistically significantly different from all other groups at  $P < .001$ .

demonstration counties, comparison counties, and other US counties, respectively; they were 40%, 37%, and 53% higher than those for rural so-designated counties, respectively ( $P < .001$  for all). In Chicago area counties, mean annual expenditures for expanded chiropractic services per patient were approximately three and one-half times that in other urban or rural demonstration counties ( $P < .001$ ).

#### Variations in Per-Beneficiary Medicare Reimbursements for Traditionally Reimbursed and Expanded Chiropractic Services

Mean annual expenditures for traditionally reimbursed chiropractic services for patients with a specified NMS diagnosis, who were Medicare Part B enrollees, and who used at least \$1 of Medicare Part B reimbursed chiropractic services before, during, and after the Demonstration varied substantially across time and geography (Fig 1). Chicago area demonstration counties had substantially higher pre-demo annual mean chiropractic user costs (\$298) than all comparison groups (\$250 for urban non-Chicago area demonstration counties, \$219 for rural non-Chicago area demonstration counties, \$258 for urban comparison counties, \$228 for rural comparison counties, and \$244 and \$205 for urban and rural counties that were neither demonstration nor comparison counties, respectively) ( $P < .001$ ). All groups showed substantial increases in expenditures for traditionally reimbursed chiropractic services when comparing the demo to the pre-demo period, ranging from 6.2% for rural comparison counties and rural counties not involved in the demonstration project to 11.3% in Chicago area counties. During the demo period, Medicare spending on chiropractic users for traditional chiropractic services increased for all

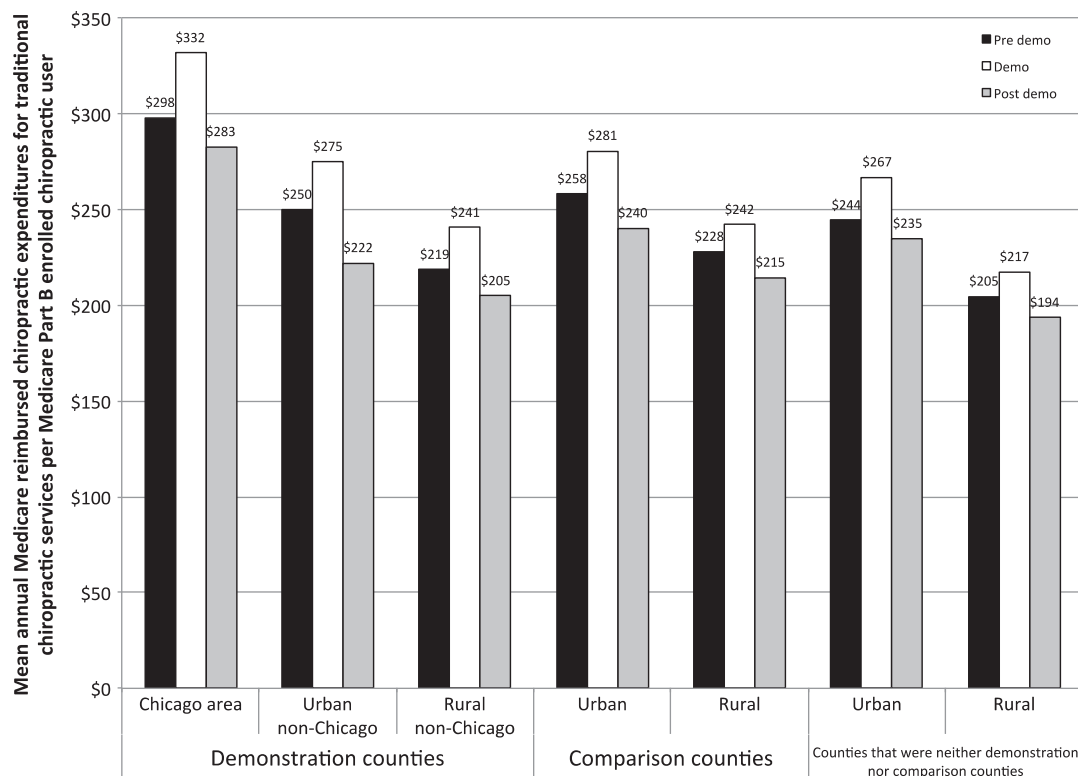
county types, and after the demo period, that spending fell to below pre-demo levels; nonetheless, in every period, Chicago area Demonstration counties had statistically significantly higher per chiropractic user reimbursement ( $P < .001$ ).

Table 2 shows substantial variation in types, patterns, and costs of expanded services used and related total and per person expenditures in Chicago area vs all non-Chicago area demonstration counties (including both rural and urban non-Chicago area demonstration counties). In Chicago area counties, a much larger proportion of chiropractic expenditures were for active therapies than in non-Chicago area counties (37% vs 16%). Although expenditures per patient were higher in Chicago area counties for most types of expanded services, differences were particularly great for passive therapies (\$267 vs \$76 per patient) and active therapies (\$230 vs \$28 per patient). Similarly, we found differences in billing practices within a category; for instance, Chicago area DCs were about twice as likely to bill for longer length E&M codes (99204–05 and 99214–15) than those outside the Chicago area (relative risk ratio for new patient E&M codes, 1.81 [95% confidence interval, 1.70–1.92], and relative risk ratio for established patient E&M codes, 1.83 [95% confidence interval, 1.74–1.93]).

#### ALTERNATIVE DIRECT COST ESTIMATES FOR EXPANDED COVERAGE SCENARIOS

We generated counterfactual estimates of the direct costs of expanded coverage for chiropractic services under different scenarios. First, we excluded the Chicago effect by estimating incremental Medicare Part B costs of





**Fig 1.** Chiropractic users' mean annual Medicare-funded chiropractic expenditures by Demonstration participation, rural/urban status, and period. For each period, Chicago results are statistically significantly different than all other groups at  $P < .001$ .

expanded coverage had the rates and types of utilization of expanded services been similar to those observed in non-Chicago demonstration counties. Then, we examined the sequential and additive financial impacts had expanded chiropractic services not included extraspinal manipulation, passive therapies, and active therapies. Finally, we estimated costs should all of those conditions been in place, and reimbursement for only evaluation and management codes had been allowed.

Had rates of utilization and costs of expanded services in Chicago area demonstration counties been similar to those observed in non-Chicago demonstration counties, overall expenditures for expanded coverage during the Demonstration would have been reduced by 50%, from \$36.1 million to \$18.1 million (Fig 2). Had extraspinal manipulation not been included in the Medicare benefit, cumulative direct costs would have been lowered by an additional \$2.8 million (an 8% reduction from the original \$36.1 million estimate); had passive therapies also not been included, cumulative direct costs would have been lowered an additional \$3.2 million (a 9% reduction); and had active therapies also not been included, cumulative direct costs would have been lowered an additional \$4.9 million (a 14% reduction). In addition, had only E&M codes been allowed, cumulative direct costs would have been \$3.9 million (11%) less. The combined effect of eliminating the Chicago area DCs'

relatively aggressive billing practices and limiting reimbursement to only evaluation and management codes would have reduced the total direct costs of the demonstration from \$36.1 million to \$3.3 million, a 90% reduction.

## DISCUSSION

We examined the response from DCs to an expanded Medicare benefit and found widespread geographic variation in practice behavior and patterns. In particular, DCs in Chicago area demonstration counties had much more aggressive underlying Medicare billing practices than those in other rural or urban demonstration and nondemonstration counties before, during, and after the Demonstration; furthermore, they responded to the Demonstration by billing more aggressively than did those in other demonstration counties. Had the Chicago area's rate of use of expanded services approximated that of the other demonstration counties, direct Medicare Part B costs of the Demonstration might have been substantially lower. In addition, restricting the expansion to fewer reimbursable therapeutic or evaluative codes might have further reduced the direct impact of the Demonstration.

In light of what appears to be a relatively mature market for complementary and alternative medicine during the period examined,<sup>18</sup> our findings suggest that Chicago's rapid

**Table 2.** Comparison of total and per patient expenditures and proportional spending patterns across expanded service types in Chicago area and in non-Chicago area demonstration counties over the 2 years of the Demonstration (see [Appendix II](#) for procedure codes, descriptions, and categories)

	Chicago area counties			Non-Chicago area counties		
	Total	Per patient	%	Total	Per patient	%
Passive therapies <sup>a</sup>	\$10 513 922	\$267.26	42%	\$4 943 986	\$76.41	44%
Active therapies <sup>b</sup>	\$9 053 344	\$230.13	37%	\$1 812 738	\$28.02	16%
Extraspinal manipulation	\$1 722 494	\$43.78	7%	\$1 755 181	\$27.13	16%
Established patient E&M	\$1 581 581	\$40.20	6%	\$1 015 183	\$15.69	9%
New patient E&M	\$1 353 705	\$34.41	5%	\$1 013 670	\$15.67	9%
X-rays	\$410 424	\$10.43	2%	\$672 185	\$10.39	6%
Testing	\$161 574	\$4.10	1%	\$81 790	\$1.26	0%
Across 2 years	\$24 796 945	\$630.32	100%	\$11 294 732	\$174.56	100%
Per year	\$12 398 472	\$315.16		\$5 647 366	\$87.28	

<sup>a</sup> For example, massage and ultrasound.

<sup>b</sup> For example, therapeutic exercise and gait training.

uptake of expanded services billing, coupled with a high underlying rate of chiropractic care billing among Medicare enrollees and a relatively high density of Medicare-billing DCs, all converged to make Chicago area chiropractic care atypical of that for the country during the Demonstration, and although DCs in Chicago area counties showed the same decline in billing during the post-demo period, the declines were not as proportionally dramatic as those seen in other urban demonstration and comparison counties. Furthermore, in the post-demo period, Chicago area DCs continued to be reimbursed at least 17% more per patient by Medicare than DCs in other urban counties.

Our study findings are directly relevant to issues raised in the 2014 Medicare Physician Payment Schedule Proposed Rule published in the Federal Register (July 8, 2013) regarding a potential policy change that would allow the Centers for Medicare and Medicaid Services to reimburse DCs for E&M services.<sup>26</sup> Specifically, the Department of Health and Human Services seeks guidance regarding the appropriateness and logistical issues surrounding such a policy change. Our counterfactual analysis suggests such a change should generate relatively modest increases in Medicare costs and that appropriate limits placed on the use of existing E&M codes may help to ensure proper billing and use of services, particularly in competitive areas.<sup>27</sup> More generally, this analysis suggests that regulating the relative use of particular benefits, capping the overall per user reimbursement, or constraining the benefit to a smaller number of services are likely to reduce Medicare's exposure to costs associated with introducing a new benefit.

## LIMITATIONS

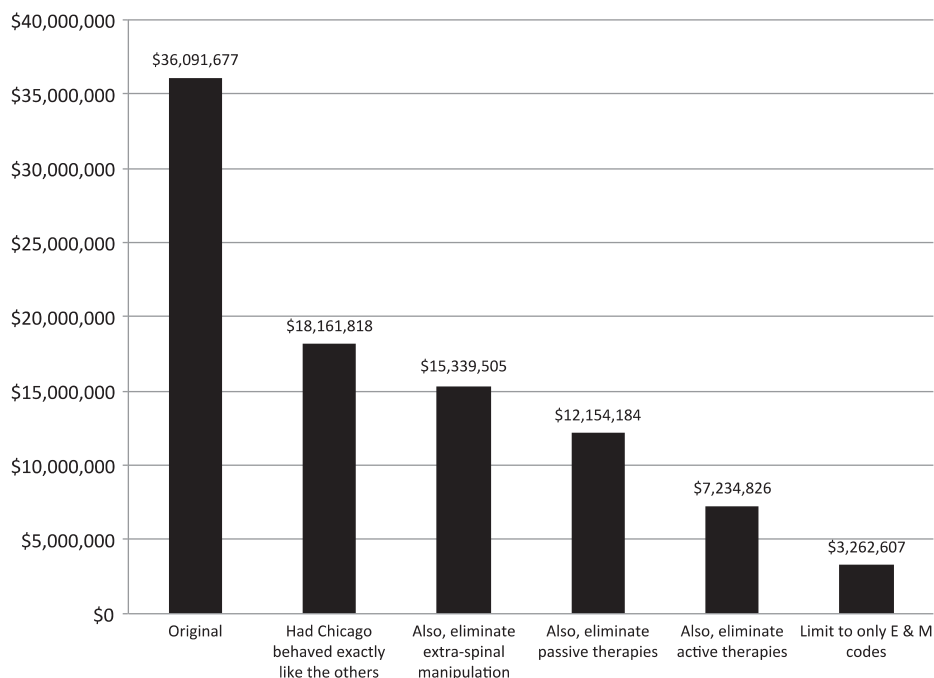
Our analysis has several limitations. First, we were unable to copy exactly the methods used in the original analysis of the Demonstration. That evaluation was able to use direct bills submitted to Medicare by DCs who participated in the Demonstration. Because these data were not available to us, we

used the closest possible approximation by identifying bills for expanded services and provider type from Medicare's billing data. As a result, our estimate of the total direct Medicare Part B costs of the Demonstration was approximately 3.7% higher than that of the original study. Nonetheless, our results are internally consistent and replicable. Second, our counterfactual analysis uses estimates of behavior changes following identified policy constraints. It is possible, if not likely, that DCs might substitute other services had the ones we identified for elimination not been reimbursed. Third, we concentrated our analysis on the direct effects of expanded coverage under the Demonstration. A recent study suggested a possible cost-offset associated with use of chiropractic for back and neck problems.<sup>14</sup> More study is required to determine whether a cost-offset effect might be associated with use of chiropractic care for particular conditions.

Despite these limitations, our findings suggest that restriction of expanded coverage to a reduced range of services would have reduced direct cost impacts. For example, limiting expansion to reimbursement for E&M services might have reduced the direct cost impact by 90%. Policymakers might consider implementing a narrower expansion of chiropractic services than those examined under the Demonstration.

## CONCLUSION

We found widespread geographic variation in practice behavior and patterns. Chicago area DCs billed more aggressively for expanded services during the Medicare Demonstration Project. Costs would have been substantially lower had DCs in Chicago area counties responded similarly to those in other demonstration counties. These findings suggest that local environmental factors, such as existing practice and billing patterns, competitiveness, and supply of providers will impact total costs. These local factors will make generating national estimates difficult. Our findings also suggest that Medicare might reduce the risk of accelerated costs associated with the introduction of a new



**Fig 2.** Estimates of the direct Medicare cost impact of the Demonstration across 6 scenarios.

benefit by applying appropriate limits to the frequency of use and overall costs of those benefits, particularly in highly competitive markets.

#### Practical Applications

- Between 2005 and 2007, Medicare conducted a demonstration project that expanded coverage for chiropractic services in certain US counties; analysis of the project found that \$35 million in direct costs was attributed to that expansion and those costs were used to project estimates of national expansion of services.
- Our examination of Medicare data revealed that Chicago area counties accounted for the large majority of the increased costs. When compared with those in other counties, DCs in Chicago area counties billed Medicare for both traditionally reimbursed and expanded chiropractic services much more aggressively.
- The behavior from 1 area (Chicago) distorted findings from the demonstration project; therefore, policymakers should be cautious about using those findings to make national policy.

#### FUNDING SOURCES AND POTENTIAL CONFLICTS OF INTEREST

Funding for this study was provided by the NCMIC Foundation. No conflicts of interest were reported for this study.

#### CONTRIBUTORSHIP INFORMATION

Concept development (provided idea for the research): WBW, CMG, JMW.

Design (planned the methods to generate the results): WBW, CMG, JMW, AT.

Supervision (provided oversight, responsible for organization and implementation, writing of the manuscript): WBW.

Data collection/processing (responsible for experiments, patient management, organization, or reporting data): WBW, JMW, AT.

Analysis/interpretation (responsible for statistical analysis, evaluation, and presentation of the results): WBW, JMW, CMG.

Literature search (performed the literature search): WBW, JMW.

Writing (responsible for writing a substantive part of the manuscript): WBW, JMW, CMG, AT.

Critical review (revised manuscript for intellectual content, this does not relate to spelling and grammar checking): WBW, JMW, CMG, AT.

#### REFERENCES

1. Weiner DK, Kim YS, Bonino P, Wang T. Low back pain in older adults: are we utilizing healthcare resources wisely? *Pain Med* 2006;7:143-50.
2. Weiner DK, Sakamoto S, Perera S, Breuer P. Chronic low back pain in older adults: prevalence, reliability, and validity of physical examination findings. *J Am Geriatr Soc* 2006;54: 11-20.

3. Lawrence DJ, Meeker W. Chiropractic and CAM utilization: a descriptive review. *Chiropr Osteopat* 2007;15. <http://www.chiromt.com/content/15/1/2>.
4. Bronfort G, Nilsson N, Haas M, et al. Non-invasive physical treatments for chronic/recurrent headache. *Cochrane Database Syst Rev* 2004;3 CD001878.
5. Gross A, Miller J, D'Sylva J, et al. Manipulation or mobilisation for neck pain: a Cochrane Review. *Man Ther* 2010;15:315-33.
6. Rubinstein SM, van Middelkoop M, Assendelft WJ, de Boer MR, van Tulder MW. Spinal manipulative therapy for chronic low-back pain. *Cochrane Database Syst Rev* 2011;2 CD008112.
7. Bronfort G, Goldsmith CH, Nelson CF, Boline PD, Anderson AV. Trunk exercise combined with spinal manipulative or NSAID therapy for chronic low back pain: a randomized, observer-blinded clinical trial. *J Manipulative Physiol Ther* 1996;19:570-82.
8. Haas M, Grouppe E, Aickin M, et al. Dose response for chiropractic care of chronic cervicogenic headache and associated neck pain: a randomized pilot study. *J Manipulative Physiol Ther* 2004;27:547-53.
9. Chou R, Qaseem A, Snow V, et al. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. *Ann Int Med* 2007;147:478-91.
10. Guzman J, Haldeman S, Carroll LJ, et al. Clinical practice implications of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders: from concepts and findings to recommendations. *Spine* 2008;33: S199-213.
11. American Geriatrics Society. The management of chronic pain in older persons: AGS Panel on Chronic Pain in Older Persons. *J Am Geriatr Soc* 1998;46:635-51.
12. Legorreta AP, Metz RD, Nelson CF, Ray S, Chenicoff HO, Dinubile NA. Comparative analysis of individuals with and without chiropractic coverage: patient characteristics, utilization, and costs. *Arch Intern Med* 2004;164:1985-92.
13. Liliedahl RL, Finch MD, Axene DV, Goertz CM. Cost of care for common back pain conditions initiated with chiropractic doctor vs medical doctor/doctor of osteopathy as first physician: experience of one Tennessee-based general health insurer. *J Manipulative Physiol Ther* 2010; 33:640-3.
14. Martin BI, Gerkovich MM, Deyo RA, et al. The association of complementary and alternative medicine use and health care expenditures for back and neck problems. *Med Care* 2012;50: 1029-36.
15. United States Congress. H.R. 1: Social Security Amendments for 1972. Washington, DC: US Government Printing Office; 1972.
16. Meeker WC, Haldeman S. Chiropractic: a profession at the crossroads of mainstream and alternative medicine. *Ann Int Med* 2002;136:216-27.
17. Sherman KJ, Cherkin DC, Deyo RA, et al. The diagnosis and treatment of chronic back pain by acupuncturists, chiropractors, and massage therapists. *Clin J Pain* 2006;22:227-34.
18. Davis MA, Martin BI, Coulter ID, Weeks WB. US spending on complementary and alternative medicine during 2002-08 plateaued, suggesting role in reformed health system. *Health Aff* 2013;32:45-52.
19. Whedon JM, Davis MA. Medicare part B claims for chiropractic spinal manipulation, 1998 to 2004. *J Manipulative Physiol Ther* 2010;33:558-61.
20. Weigel PA, Hockenberry JM, Bentler SE, Kaskie B, Wolinsky FD. Chiropractic episodes and the co-occurrence of chiropractic and health services use among older Medicare beneficiaries. *J Manipulative Physiol Ther* 2012;35:168-75.
21. Davis MA, Mackenzie TA, Coulter ID, Whedon JM, Weeks WB. The United States Chiropractic Workforce: an alternative or complement to primary care? *Chiropr Man Therap* 2012; 20:35.
22. Davis MA, Whedon JM, Weeks WB. Complementary and alternative medicine practitioners and Accountable Care Organizations: the train is leaving the station. *J Altern Complement Med* 2011;17:669-74.
23. Stason WB, Ritter G, Shepard DS, et al. Final Report: Evaluation of the Demonstration of Expanded Coverage of Chiropractic Services under Medicare. Waltham, MA: Brandeis University; 2010.
24. Rural-urban Continuum Codes (updated 7/29/2004). 2004. (Accessed April 4, 2013, at <http://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx-UVymDatAShQ>).
25. Paul-Shaheen P, Williams D, Clark J. Small area analysis: a review and analysis of the North American literature. *J Health Polit Policy Law* 1987;12:741-809.
26. Department of Health and Human Services. Medicare Program; revisions to payment policies under the Physician Fee Schedule, Clinical Laboratory Fee Schedule & Other Revisions to Part B for CY 2014. In: Department of Health and Human Services, editor. Baltimore, MD: Centers for Medicare and Medicaid Services; 2013. p. 220-3. <http://www.gpo.gov/fdsys/pkg/FR-2013-07-19/pdf/2013-16547.pdf>.
27. Whedon JM, Song Y, Davis MA, Lurie JD. Use of chiropractic spinal manipulation in older adults is strongly correlated with supply. *Spine* 2012;37:1771-7.



# APPENDIX I. MEDICARE DESIGNATED NEUROMUSCULOSKELETAL DIAGNOSIS CODES

Centers for Medicare and Medicaid Services. Chiropractic Billing Guide. October 2010; <http://www.medicarenhic.com/providers/pubs/Chiropractic%20Billing%20Guide.pdf>. Accessed December 30, 2011.

PRIMARY DIAGNOSES	
ICD-9 CODE	DIAGNOSIS
739	NONALLOPATHIC LESIONS OF HEAD REGION NOT ELSEWHERE CLASSIFIED
739.1	NONALLOPATHIC LESIONS OF CERVICAL REGION NOT ELSEWHERE CLASSIFIED
739.2	NONALLOPATHIC LESIONS OF THORACIC REGION NOT ELSEWHERE CLASSIFIED
739.3	NONALLOPATHIC LESIONS OF LUMBAR REGION NOT ELSEWHERE CLASSIFIED
739.4	NONALLOPATHIC LESIONS OF SACRAL REGION NOT ELSEWHERE CLASSIFIED
739.5	NONALLOPATHIC LESIONS OF PELVIC REGION NOT ELSEWHERE CLASSIFIED
739.8	NONALLOPATHIC LESIONS OF RIB CAGE NOT ELSEWHERE CLASSIFIED
SECONDARY DIAGNOSES	
ICD-9 CODE	DIAGNOSIS
307.81	TENSION HEADACHE
333.83	SPASMODIC TORTICOLLIS
346.00-346.93	MIGRAINE WITH AURA, WITHOUT MENTION OF INTRACTABLE MIGRAINE WITHOUT MENTION OF STATUS MIGRAINOSUS - MIGRAINE, UNSPECIFIED, WITH INTRACTABLE MIGRAINE, SO STATED, WITH STATUS MIGRAINOSUS
350.1	TRIGEMINAL NEURALGIA
350.2	ATYPICAL FACE PAIN
351.0	BELL'S PALSY
352.3	DISORDERS OF PNEUMOGASTRIC (10TH) NERVE
352.9	UNSPECIFIED DISORDER OF CRANIAL NERVES
353.0	BRACHIAL PLEXUS LESIONS
353.1	LUMBOSACRAL PLEXUS LESIONS
353.2	CERVICAL ROOT LESIONS NOT ELSEWHERE CLASSIFIED
353.3	THORACIC ROOT LESIONS NOT ELSEWHERE CLASSIFIED
353.4	LUMBOSACRAL ROOT LESIONS NOT ELSEWHERE CLASSIFIED
353.8	OTHER NERVE ROOT AND PLEXUS DISORDERS
354.4	CAUSALGIA OF UPPER LIMB
354.8	OTHER MONONEURITIS OF UPPER LIMB
355.0	LESION OF SCIATIC NERVE
355.1	MERALGIA PARESTHETICA
355.5	TARSAL TUNNEL SYNDROME
381.4	NONSUPPURATIVE OTITIS MEDIA NOT SPECIFIED AS ACUTE OR CHRONIC
386.00	MÉNIÈRE'S DISEASE, UNSPECIFIED
386.01	ACTIVE MÉNIÈRE'S DISEASE, COCHLEOVESTIBULAR
386.02	ACTIVE MÉNIÈRE'S DISEASE, COCHLEAR
386.03	ACTIVE MÉNIÈRE'S DISEASE, VESTIBULAR
386.30	LABYRINTHITIS UNSPECIFIED
386.9	UNSPECIFIED VERTIGINOUS SYNDROMES AND LABYRINTHINE DISORDERS
715.00	OSTEOARTHRITIS GENERALIZED INVOLVING UNSPECIFIED SITE
715.09	OSTEOARTHRITIS GENERALIZED INVOLVING MULTIPLE SITES
715.15	OSTEOARTHRITIS LOCALIZED PRIMARY INVOLVING PELVIC REGION AND THIGH
715.18	OSTEOARTHRITIS LOCALIZED PRIMARY INVOLVING OTHER SPECIFIED SITES
715.21	OSTEOARTHRITIS LOCALIZED SECONDARY INVOLVING SHOULDER REGION
715.22	OSTEOARTHRITIS LOCALIZED SECONDARY INVOLVING UPPER ARM
715.25	OSTEOARTHRITIS LOCALIZED SECONDARY INVOLVING PELVIC REGION AND THIGH
715.28	OSTEOARTHRITIS LOCALIZED SECONDARY INVOLVING OTHER SPECIFIED SITES
715.80	OSTEOARTHRITIS INVOLVING OR WITH MORE THAN ONE SITE BUT NOT SPECIFIED AS GENERALIZED AND INVOLVING UNSPECIFIED SITE
715.90-715.98	OSTEOARTHRITIS UNSPECIFIED WHETHER GENERALIZED OR LOCALIZED INVOLVING UNSPECIFIED SITE - OSTEOARTHRITIS UNSPECIFIED WHETHER GENERALIZED OR LOCALIZED INVOLVING OTHER SPECIFIED SITES
716.10-716.19	TRAUMATIC ARTHROPATHY SITE UNSPECIFIED - TRAUMATIC ARTHROPATHY INVOLVING MULTIPLE SITES
716.68	UNSPECIFIED MONOARTHRITIS INVOLVING OTHER SPECIFIED SITES
716.95	UNSPECIFIED ARTHROPATHY INVOLVING PELVIC REGION AND THIGH

APPENDIX I (continued)

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718.51	ANKYLOSIS OF JOINT OF SHOULDER REGION
718.52	ANKYLOSIS OF UPPER ARM JOINT
718.55	ANKYLOSIS OF JOINT OF PELVIC REGION AND THIGH
719.40-719.68	PAIN IN JOINT SITE UNSPECIFIED - OTHER SYMPTOMS REFERABLE TO JOINT OF OTHER SPECIFIED SITES
719.69	OTHER SYMPTOMS REFERABLE TO JOINT OF MULTIPLE SITES
719.80	OTHER SPECIFIED DISORDERS OF JOINT SITE UNSPECIFIED
719.81	OTHER SPECIFIED DISORDERS OF JOINT OF SHOULDER REGION
719.82	OTHER SPECIFIED DISORDERS OF UPPER ARM JOINT
719.83	OTHER SPECIFIED DISORDERS OF FOREARM JOINT
719.84	OTHER SPECIFIED DISORDERS OF HAND JOINT
719.85	OTHER SPECIFIED DISORDERS OF JOINT OF PELVIC REGION AND THIGH
719.86	OTHER SPECIFIED DISORDERS OF LOWER LEG JOINT
719.87	OTHER SPECIFIED DISORDERS OF ANKLE AND FOOT JOINT
719.88	OTHER SPECIFIED DISORDERS OF JOINT OF OTHER SPECIFIED SITES
719.89	OTHER SPECIFIED DISORDERS OF JOINT OF MULTIPLE SITES
720.0	ANKYLOSING SPONDYLITIS
720.1	SPINAL ENTHESOPATHY
720.2	SACROILIITIS NOT ELSEWHERE CLASSIFIED
720.81	INFLAMMATORY SPONDYLOPATHIES IN DISEASES CLASSIFIED ELSEWHERE
720.89	OTHER INFLAMMATORY SPONDYLOPATHIES
721.0	CERVICAL SPONDYLOSIS WITHOUT MYELOPATHY
721.1	CERVICAL SPONDYLOSIS WITH MYELOPATHY
721.2	THORACIC SPONDYLOSIS WITHOUT MYELOPATHY
721.3	LUMBOSACRAL SPONDYLOSIS WITHOUT MYELOPATHY
721.41	SPONDYLOSIS WITH MYELOPATHY THORACIC REGION
721.42	SPONDYLOSIS WITH MYELOPATHY LUMBAR REGION
721.6	ANKYLOSING VERTEBRAL HYPEROSTOSIS
721.7	TRAUMATIC SPONDYLOPATHY
721.90	SPONDYLOSIS OF UNSPECIFIED SITE WITHOUT MYELOPATHY
721.91	SPONDYLOSIS OF UNSPECIFIED SITE WITH MYELOPATHY
722.0	DISPLACEMENT OF CERVICAL INTERVERTEBRAL DISC WITHOUT MYELOPATHY
722.10	DISPLACEMENT OF LUMBAR INTERVERTEBRAL DISC WITHOUT MYELOPATHY
722.11	DISPLACEMENT OF THORACIC INTERVERTEBRAL DISC WITHOUT MYELOPATHY
722.4	DEGENERATION OF CERVICAL INTERVERTEBRAL DISC
722.51	DEGENERATION OF THORACIC OR THORACOLUMBAR INTERVERTEBRAL DISC
722.52	DEGENERATION OF LUMBAR OR LUMBOSACRAL INTERVERTEBRAL DISC
722.70	INTERVERTEBRAL DISC DISORDER WITH MYELOPATHY UNSPECIFIED REGION
722.71	INTERVERTEBRAL DISC DISORDER WITH MYELOPATHY CERVICAL REGION
722.72	INTERVERTEBRAL DISC DISORDER WITH MYELOPATHY THORACIC REGION
722.73	INTERVERTEBRAL DISC DISORDER WITH MYELOPATHY LUMBAR REGION
722.81	POSTLAMINECTOMY SYNDROME OF CERVICAL REGION
722.82	POSTLAMINECTOMY SYNDROME OF THORACIC REGION
722.83	POSTLAMINECTOMY SYNDROME OF LUMBAR REGION
722.91	OTHER AND UNSPECIFIED DISC DISORDER OF CERVICAL REGION
722.92	OTHER AND UNSPECIFIED DISC DISORDER OF THORACIC REGION
722.93	OTHER AND UNSPECIFIED DISC DISORDER OF LUMBAR REGION
723.0	SPINAL STENOSIS IN CERVICAL REGION
723.1	CERVICALGIA
723.2	CERVICOCRANIAL SYNDROME
723.3	CERVICOBACHIAL SYNDROME (DIFFUSE)
723.4	BRACHIAL NEURITIS OR RADICULITIS NOS
723.5	TORTICOLLIS UNSPECIFIED
723.7	OSSIFICATION OF POSTERIOR LONGITUDINAL LIGAMENT IN CERVICAL REGION
723.8	OTHER SYNDROMES AFFECTING CERVICAL REGION
723.9	UNSPECIFIED MUSCULOSKELETAL DISORDERS AND SYMPTOMS REFERABLE TO NECK
724.01	SPINAL STENOSIS OF THORACIC REGION
724.02	SPINAL STENOSIS OF LUMBAR REGION
724.09	SPINAL STENOSIS OF OTHER REGION
724.1	PAIN IN THORACIC SPINE
724.2	LUMBAGO
724.3	SCIATICA
724.4	THORACIC OR LUMBOSACRAL NEURITIS OR RADICULITIS UNSPECIFIED
724.5	BACKACHE UNSPECIFIED

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(continued on next page)

APPENDIX I (continued)

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724.6	DISORDERS OF SACRUM
724.70-724.71	UNSPECIFIED DISORDER OF COCCYX - HYPERMOBILITY OF COCCYX
724.79	OTHER DISORDERS OF COCCYX
724.8	OTHER SYMPTOMS REFERABLE TO BACK
724.9	OTHER UNSPECIFIED BACK DISORDERS
726.91	EXOSTOSIS OF UNSPECIFIED SITE
727.00	SYNOVITIS AND TENOSYNOVITIS UNSPECIFIED
727.3	OTHER BURSTITIS DISORDERS
727.82	CALCIUM DEPOSITS IN TENDON AND BURSA
728.12	TRAUMATIC MYOSITIS OSSIFICANS
728.85	SPASM OF MUSCLE
728.89	OTHER DISORDERS OF MUSCLE LIGAMENT AND FASCIA
728.9	UNSPECIFIED DISORDER OF MUSCLE LIGAMENT AND FASCIA
729.0	RHEUMATISM UNSPECIFIED AND FIBROSITIS
729.1	MYALGIA AND MYOSITIS UNSPECIFIED
729.2	NEURALGIA NEURITIS AND RADICULITIS UNSPECIFIED
729.4	FASCIITIS UNSPECIFIED
737.0	ADOLESCENT POSTURAL KYPHOSIS
737.11	KYPHOSIS DUE TO RADIATION
737.12	KYPHOSIS POSTLAMINECTOMY
737.19	OTHER KYPHOSIS ACQUIRED
737.20	LORDOSIS (ACQUIRED) (POSTURAL)
737.21	LORDOSIS POSTLAMINECTOMY
737.22	OTHER POSTSURGICAL LORDOSIS
737.29	OTHER LORDOSIS ACQUIRED
737.30	SCOLIOSIS (AND KYPHOSCOLIOSIS) IDIOPATHIC
737.31	RESOLVING INFANTILE IDIOPATHIC SCOLIOSIS
737.32	PROGRESSIVE INFANTILE IDIOPATHIC SCOLIOSIS
737.33	SCOLIOSIS DUE TO RADIATION
737.34	THORACOGENIC SCOLIOSIS
737.39	OTHER KYPHOSCOLIOSIS AND SCOLIOSIS
738.4	ACQUIRED SPONDYLOLISTHESIS
738.5	OTHER ACQUIRED DEFORMITY OF BACK OR SPINE
754.2	CONGENITAL MUSCULOSKELETAL DEFORMITIES OF SPINE
756.10	CONGENITAL ANOMALY OF SPINE UNSPECIFIED
756.11	CONGENITAL SPONDYLOLYSIS LUMBOSACRAL REGION
756.12	SPONDYLOLISTHESIS CONGENITAL
756.13	ABSENCE OF VERTEBRA CONGENITAL
756.14	HEMIVERTEBRA
756.15	FUSION OF SPINE (VERTEBRA) CONGENITAL
756.16	KLIPPEL-FEIL SYNDROME
756.17	SPINA BIFIDA OCCULTA
756.19	OTHER CONGENITAL ANOMALIES OF SPINE
756.2	CERVICAL RIB
780.8	GENERALIZED HYPERHIDROSIS
780.99	OTHER GENERAL SYMPTOMS
781.0	ABNORMAL INVOLUNTARY MOVEMENTS
781.2	ABNORMALITY OF GAIT
781.3	LACK OF COORDINATION
781.8	NEUROLOGICAL NEGLECT SYNDROME
781.99	OTHER SYMPTOMS INVOLVING NERVOUS AND MUSCULOSKELETAL SYSTEMS
784.0	HEADACHE
839.00-839.08	CLOSED DISLOCATION CERVICAL VERTEBRA UNSPECIFIED - CLOSED DISLOCATION MULTIPLE CERVICAL VERTEBRAE
839.20-839.21	CLOSED DISLOCATION LUMBAR VERTEBRA - CLOSED DISLOCATION THORACIC VERTEBRA
839.40-839.49	CLOSED DISLOCATION VERTEBRA UNSPECIFIED SITE - CLOSED DISLOCATION OTHER VERTEBRA
839.61-839.69	CLOSED DISLOCATION STERNUM - CLOSED DISLOCATION OTHER LOCATION
846.0	LUMBOSACRAL (JOINT) (LIGAMENT) SPRAIN
846.1	SACROILIAC (LIGAMENT) SPRAIN
846.2	SACROSPINATUS (LIGAMENT) SPRAIN
846.3	SACROTUBEROUS (LIGAMENT) SPRAIN

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APPENDIX I (continued)

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846.8	OTHER SPECIFIED SITES OF SACROILIAC REGION SPRAIN
846.9	UNSPECIFIED SITE OF SACROILIAC REGION SPRAIN
847.0	NECK SPRAIN
847.1	THORACIC SPRAIN
847.2	LUMBAR SPRAIN
847.3	SPRAIN OF SACRUM
847.4	SPRAIN OF COCCYX
848.5	PELVIC SPRAIN
850.9	CONCUSSION UNSPECIFIED
905.7	LATE EFFECT OF SPRAIN AND STRAIN WITHOUT TENDON INJURY
905.8	LATE EFFECT OF TENDON INJURY
907.3	LATE EFFECT OF INJURY TO NERVE ROOT(S) SPINAL PLEXUS(ES) AND OTHER NERVES OF TRUNK
953.0	INJURY TO CERVICAL NERVE ROOT
953.1	INJURY TO DORSAL NERVE ROOT
953.2	INJURY TO LUMBAR NERVE ROOT
953.3	INJURY TO SACRAL NERVE ROOT
953.4	INJURY TO BRACHIAL PLEXUS
953.5	INJURY TO LUMBOSACRAL PLEXUS
954.0	INJURY TO CERVICAL SYMPATHETIC NERVE EXCLUDING SHOULDER AND PELVIC GIRDLES
954.1	INJURY TO OTHER SYMPATHETIC NERVE EXCLUDING SHOULDER AND PELVIC GIRDLES
954.8	INJURY TO OTHER SPECIFIED NERVE(S) OF TRUNK EXCLUDING SHOULDER AND PELVIC GIRDLES
954.9	INJURY TO UNSPECIFIED NERVE OF TRUNK EXCLUDING SHOULDER AND PELVIC GIRDLES
956.0	INJURY TO SCIATIC NERVE
956.1	INJURY TO FEMORAL NERVE
956.2	INJURY TO POSTERIOR TIBIAL NERVE
956.3	INJURY TO PERONEAL NERVE
956.4	INJURY TO CUTANEOUS SENSORY NERVE LOWER LIMB
956.5	INJURY TO OTHER SPECIFIED NERVE(S) OF PELVIC GIRDLE AND LOWER LIMB
956.8	INJURY TO MULTIPLE NERVES OF PELVIC GIRDLE AND LOWER LIMB
956.9	INJURY TO UNSPECIFIED NERVE OF PELVIC GIRDLE AND LOWER LIMB

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## APPENDIX II. CODES, DESCRIPTIONS, AND CATEGORIES OF EXPANDED CHIROPRACTIC SERVICES

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### SERVICES CURRENTLY COVERED UNDER MEDICARE

#### Spinal Manipulation

98940	Spinal manipulation, 1-2 spinal regions
98941	Spinal manipulation, 3-4 spinal regions
98942	Spinal manipulation, 5 or more spinal regions

### EXPANDED SERVICES

#### Extraspinal Manipulation

98943	Extraspinal manipulation
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#### Evaluation and Management

99201	New patient 10 minutes
99202	New patient 20 minutes
99203	New patient 30 minutes
99204	New patient 45 minutes
99205	New patient 60 minutes
99211	Established patient 5 minutes
99212	Established patient 10 minutes
99213	Established patient 15 minutes
99214	Established patient 25 minutes
99215	Established patient 40 minutes

#### Nonmanipulative Therapies

##### Active Therapies

97110	Therapeutic exercise
97112	Neuromuscular reduction
97113	Aquatic therapy with exercise
97116	Gait training
97530	Therapeutic activities—dynamic activities to improve functional performance

##### Passive Therapies

64550	Application of surface (transcutaneous) neurostimulator
97012	Traction, mechanical
97018	Paraffin bath
97020	Microwave
97024	Diathermy
97026	Infrared
97028	Ultraviolet
97032	Electrical stimulation, constant attendance
97034	Contrast baths
97035	Ultrasound
97039	Unlisted modality
97124	Massage
97139	Unlisted therapeutic procedure
97140	Manual therapy techniques
97150	Therapeutic procedures, group
97504	Orthotic fitting and training
97703	Check out for orthotics and prosthetic use
97750	Physical performance test or measurement, with written report
97799	Unlisted physical medicine/rehabilitation service
G0283	Unattended electrical stimulation for other than wound care

#### Imaging and Other Diagnostic Testing

72010	X-ray spine entire
72020	X-ray spine, 1 view
72040	X-ray spine cervical 2-3 views
72050	X-ray, spine cervical 4+ views
72052	X-ray spine cervical complete
72069	X-ray spine standing for thoracolumbar
72070	X-ray spine thoracic 2 views
72072	X-ray spine thoracic 3 views
72074	X-ray, spine thoracic 4+ views
72080	X-ray spine thoracolumbar 2 views

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APPENDIX II (continued)

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72090	X-ray spine thoracolumbar supine and standing
72100	X-ray spine lumbosacral 2-3 views
72110	X-ray spine lumbosacral 4+ views
72114	X-ray spine lumbosacral complete
72120	X-ray spine lumbosacral bending only
72170	X-ray pelvis, 1-2 views
72190	X-ray pelvis complete
72200	X-ray sacroiliac joints, up to 3 views
72202	x-sacroiliac joints 3+ views
72220	X-ray sacrum and coccyx 2+ views
73000	X-ray clavicle complete
73010	X-ray scapula complete
73020	X-ray shoulder 1 view
73030	X-ray shoulder 2+ views
73050	X-ray acromioclavicular joint, bilateral
73060	X-ray humerus, 2+ views
73070	X-ray elbow 2 views
73080	X-ray elbow 3+ views
73090	X-ray forearm 2 views
73100	X-ray wrist, 2 views
73110	X-ray wrist, 3+ views
73120	X-ray hand 2 views
73130	X-ray hand 3+ views
73140	X-ray finger(s) 2+ views
73500	X-ray hip unilateral 1 view
73510	X-ray hip unilateral 2+ views
73520	X-ray hip bilateral 2+ views
73550	X-ray femur 2 views
73560	X-ray knee 1-2 views
73562	X-ray knee 3 views
73564	X-ray knee 4+ views
73565	X-ray bilateral knees standing
73590	X-ray tibia fibula 2 views
73600	X-ray ankle 2 views
73610	X-ray ankle 3+ views
73620	X-ray foot, two views
73630	X-ray foot, 3+ views
73650	X-ray heel 2+ views
73660	X-ray toe—2 or more views
71100	X-ray ribs, unilateral; 2 views
71110	X-ray ribs, bilateral 3 views
71120	X-ray sternum, 2+ views
71130	X-ray, sternum + SC joint
95831	Muscle testing, manual with report; extremity or trunk
95832	Hand, with or without comparison with normal side
95833	Total evaluation of body, excluding hands
95834	Total evaluation of body, including hands
95851	Range of motion measurements and report; each extremity or each trunk section
95852	Hand, with or without comparison with normal side
95857	Tensilon test for myasthenia gravis
95858	With electromyographic recording
95860	Needle electromyography; one extremity with or without related paraspinal areas
95861	Two extremities with or without related paraspinal areas
95863	Three extremities with or without related paraspinal areas
95864	Four extremities with or without related paraspinal areas
95867	Cranial nerve supplied muscles, unilateral
95868	Cranial nerve supplied muscles, bilateral
95900	Nerve conduction, amplitude and latency/velocity study, each nerve; motor, without F-wave study
95903	Motor, with F-wave study
95904	Sensory

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