



**Utilization, Cost, and Effects of  
Chiropractic Care on Medicare  
Program Costs**

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**Muse & Associates  
1775 I Street, NW  
Suite 520  
Washington, DC 20006  
(202) 496-0200  
(202) 496-0201 (fax)  
[www.muse-associates.com](http://www.muse-associates.com)**

## **Executive Summary**

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This study examines the utilization, cost, and effects of Chiropractic services on Medicare program costs. In the course of this investigation, service utilization and program payments for Medicare beneficiaries who were treated by Doctors of Chiropractic are compared with similar data for beneficiaries treated by other provider types. The results strongly suggest that Chiropractic care significantly reduces per beneficiary costs to the Medicare program. The results also suggest that Chiropractic services could play a role in reducing costs of Medicare reform and/or a new prescription drug benefit. Presented below are detailed findings from our investigation.

### **What data and methods were used to investigate utilization, cost, and the effects of Chiropractic services on Medicare program costs?**

To investigate utilization, cost and the effects of Chiropractic services on Medicare program costs, data were compiled from the Centers for Medicare and Medicaid Services' (CMS) 1999 5 Percent Standard Analytical Files. A data extract was created that identified all Medicare beneficiaries with primary diagnoses of selected musculoskeletal, dislocations, and sprains and strains of joints and adjacent muscles conditions during 1999. The beneficiaries were divided into two groups: (1) those who were treated by Doctors of Chiropractic and (2) those who were not. Service utilization and payment data for the two groups of beneficiaries were analyzed and compared.

### **How many beneficiaries had a Medicare claim with a primary diagnosis of any of the selected medical conditions during 1999?**

During 1999, approximately 5.8 million beneficiaries had a Medicare claim with a principal diagnosis of at least one of the selected medical conditions. Of these individuals, about 1.5 million (26.8 percent) received Chiropractic care and 4.3 million (73.2 percent) were treated by other provider types.

### **Do global patterns of utilization and costs for all Medicare services differ between beneficiaries who did/did not receive Chiropractic care?**

Yes, there was a consistent pattern of differences in service utilization and Medicare payments for beneficiaries who saw Doctors of Chiropractic versus those who did not.

- Beneficiaries who received Chiropractic care averaged fewer Medicare claims per capita than those who did not (33.4 claims versus 38.5 claims).
- Beneficiaries who received Chiropractic care had lower average Medicare payments for all Medicare services than those who did not (\$4,426 versus \$8,103).
- Beneficiaries who received Chiropractic care had lower average Medicare payments per claim than those who did not (\$133 versus \$210).

- Beneficiaries who received Chiropractic care had lower average costs for each type of claim during 1999 than those who did not.

**Do patterns of utilization and costs for just the selected musculoskeletal and related medical conditions differ between beneficiaries who did/did not receive Chiropractic services?**

Yes, the 26.8 percent of Medicare beneficiaries with the selected medical conditions who received Chiropractic care generated nearly twice as many claims per capita for these conditions but only 19 percent of the total Medicare payments for their treatment.

- Beneficiaries who received Chiropractic care averaged more claims per capita than those who did not (8.0 versus 4.0).
- Beneficiaries who received Chiropractic care had lower average Medicare payments per capita for the treatment of these conditions than those who did not (\$380 versus \$594).
- Beneficiaries who received Chiropractic care had lower average Medicare payments per claim than those who did not (\$48 versus \$149).

**Do beneficiaries who did/did not receive Chiropractic care have different patterns in their subsequent utilization of Medicare services?**

Yes, there are distinct differences between the two groups of beneficiaries in their subsequent use of Medicare services.

- During 1999, the majority of beneficiaries in both groups had subsequent encounters with the Medicare program, following their initial encounter for a primary diagnosis of any of the selected musculoskeletal and related conditions. However, a lower proportion of beneficiaries who received Chiropractic care had a second encounter (69 percent versus 80 percent) or a third encounter (66 percent versus 73 percent) compared those who did not receive Chiropractic services.
- Overall, a much lower proportion of both groups had a second or third encounter with the Medicare system for the treatment of the selected medical conditions. However, beneficiaries receiving Chiropractic care were less likely to have a second encounter (14 percent versus 34 percent) or a third encounter (11 percent versus 20 percent) than those who did not receive Chiropractic services.

**Do gender differences explain the variations in service utilization and payments for these two groups of Medicare beneficiaries?**

While gender differences on the order of about 5 percentage points exist between the two groups of beneficiaries, gender, by itself, does not appear to provide an explanation for the service utilization and payment variations.

**Do differences in the age distributions of the two groups of beneficiaries explain the variations in service utilization and payments?**

There are differences in the age distributions between the two groups of beneficiaries. A smaller proportion of beneficiaries under 65 years of age and over 80 years of age were likely to receive Chiropractic services. However, age, in this instance, appears to be a surrogate for medical acuity.

**If one controls for acuity by deleting beneficiaries with institutionalized (i.e., hospital inpatient, SNF, and/or hospice) claims during 1999, do differences in utilization and costs between the two groups of beneficiaries still exist?**

After removing beneficiaries with institutional claims during 1999, substantial differences still exist between the two groups of beneficiaries. Beneficiaries who received Chiropractic care still had lower overall payments per capita and per claim for all Medicare services and for their lower back pain care than those who did not.

**What roles could Doctors of Chiropractic play in Medicare reform and/or a new prescription drug benefit for the elderly?**

The findings of our current law analysis strongly suggest that decreased access to Chiropractic services would increase program costs. Attention should, therefore, be paid to access to Chiropractic services during the reform debate. Similarly, our analysis found that, overall, those beneficiaries who used Chiropractic services, have lower Medical doctor costs. Hence, some savings would probably accrue to the Medicare program if access to Chiropractic services were increased in concert with a Medicare prescription drug benefit.

In conclusion, these results strongly suggest that Chiropractic care significantly reduces per beneficiary costs to the Medicare program currently and could potentially save even more in the future.

# Utilization, Cost, and Effects of Chiropractic Care on Medicare Program Costs

## Introduction

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The purpose of this study is to examine current cost savings associated with the provision of Chiropractic services in the Medicare program and to speculate on future potential savings. A primary obstacle to comprehensive coverage of Chiropractic services in the Medicare program has been the persistent perception by policy makers that such coverage would increase Medicare expenditures. For example, several years ago, one since departed CBO analyst placed an enormous price tag on a modest expansion of Chiropractic coverage. The supporting research that led up to these estimates was heavy on assumptions and light on facts. A formal investigation of the use and costs of Chiropractic services in the Medicare population is, therefore, warranted.

To analyze the cost savings associated with the provision of Chiropractic care in the Medicare program, we examined service utilization and program payments for Medicare beneficiaries with selected medical conditions who were treated by Doctors of Chiropractic and compared them with similar data for beneficiaries who was treated by other provider types. The remainder of this paper is divided into 4 sections. We begin by describing the data sources and methodology used to conduct our analyses. Next, we compare the service utilization patterns and costs of beneficiaries receiving Chiropractic care with those receiving care from other providers. For each group we investigate differences in their total use and costs of health care services and in their use and costs of service for the selected medical conditions. After that, we examine the demographic characteristics (i.e., gender and age) of each group of beneficiaries and attempt to explain the differences between Medicare beneficiaries who received Chiropractic care and those who did not. The final section speculates on potential savings that could accrue under Medicare reform or the addition of a prescription drug benefit to the program.

## Background

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This study builds on extensive research conducted by the Department of Defense (DOD). DOD conducted a multi-year and multi-site demonstration of Chiropractic services.<sup>1</sup>

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<sup>1</sup> *Report on the Department of Defense Chiropractic Demonstration Program*, Prepared by the Chiropractic members of the Oversight Advisory Committee in collaboration with Muse & Associates, March 3, 2000. Also, *Chiropractic Health Care Demonstration Program: Final Report*, Birth and Davis, Inc., February 2000.

Both a DOD contractor and Muse & Associates evaluated the results of the demonstration and found that, relative to non-users, users of Chiropractic services had:

- Better health outcomes;
- Higher satisfaction; and
- Lower costs.

A section of that report looked at the elderly. This study builds on that research and focuses primarily on the elderly.

### **Data Sources and Methodology**

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The data used in this study were compiled from the Centers for Medicare and Medicaid Services' (CMS) 1999 Standard Analytical Public Use Files (SAF). These files, which contain final action claims data with all adjustments resolved, capture 98 percent of all claims for all Medicare beneficiaries in a given year. The 5 Percent SAF, the data source used in this study, is created by selecting all claims records for beneficiaries with values 05, 20, 45, 70, or 95 in positions 8 and 9 of the Health Insurance Claim number.

The 5 Percent SAF consists of 7 separate files. These include inpatient, skilled nursing facility (SNF), outpatient, hospice, durable medical equipment (DME), home health agency, and Part B physician/suppliers. Results from all analyses of these files can be extrapolated to the entire Medicare population.

To conduct our analyses, we completed the following tasks:

1. From the 1999 SAF, we created a data extract that:
  - Identified all Medicare beneficiaries with primary diagnosis of selected musculoskeletal and related medical conditions;<sup>2</sup>
  - Pulled all of the claims for each of the beneficiaries identified.
2. From the initial extract, we created a research file that:
  - Divided the beneficiaries into two groups: (1) those who were treated by Doctors of Chiropractic and (2) those who were not. Beneficiaries who were treated by both Doctors of Chiropractic and other providers were placed in the Chiropractic care group.;

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<sup>2</sup> The selected categories included ICD-9 diagnostic codes 720.xx, 721.xx, 722.xx, 723.xx, 724.xx, 739.xx, 839.xx, 846.xx, and 847.xx. While these ICD-9 codes are the ones typically seen in Chiropractic practice, there is great variability in the use of these codes by Doctors of Chiropractic and other providers.

- Created sub-files for each group of beneficiaries for the selected medical diagnoses only;
- Provided service utilization and payment data for the treatment of beneficiaries with these selected primary diagnoses in the Medicare population.

## **Scope of Chiropractic Services**

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There is a misconception that Doctors of Chiropractic only treat low back pain. Although Doctors of Chiropractic have experience in treating back pain, they are trained and educated to treat a range of neuromusculoskeletal conditions and related ailments that affect the entire body. According to Chapman,<sup>3</sup> various studies, which include national surveys in the U.S., Canada, Australia, and Europe, indicate that 95 percent of Chiropractic patients have neuromusculoskeletal pain/neuromusculoskeletal disorders.

Chapman states that in treating neuromusculoskeletal pains and disorder, Doctors of Chiropractic may encounter non-musculoskeletal complaints. Whatever the patient's condition, Doctors of Chiropractic fundamentally see themselves as diagnosing and treating the underlying joint and soft tissue dysfunction. This will have reflex effects in the nervous system that may influence various conditions and general health, not just the patient's primary neuromusculoskeletal complaint.

Appendix A provides a list of the diagnoses codes commonly treated by Doctors of Chiropractic. The list, while not exhaustive or all-inclusive, includes diagnoses codes for diseases of the nervous system and sense organs, including migraines, diseases of the musculoskeletal system and corrective tissues, congenital abnormalities, and injuries, including sprains and strains.

## **Analysis**

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### Baseline Summary

The analysis begins with an examination of the baseline summary of all claims for all services for Medicare beneficiaries with the selected primary diagnoses. Baseline summary data are presented in Table 1.

In 1999, there were over 5.8 million out of a total of approximately 39 million Medicare beneficiaries, nearly 15 percent of all beneficiaries, with at least one medical claim with a principal diagnosis included in the group of selected medical conditions. Collectively, these individuals generated 216 million medical claims and Medicare program payments in excess of \$41 billion. On a per capita basis, program payments per beneficiary equaled \$7,117. Payments per claim averaged \$191.49.

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<sup>3</sup>Chapman-Smith, David. *The Chiropractic Profession*, West Des Moines, IA: NCMIC Group, Inc., 2000.

As shown in Table 1, nearly every beneficiary generated a Part B professional claim and over 80 percent used outpatient services. Additionally, approximately 30 percent (29.2 percent) of the beneficiaries had DME claims and 28.4 percent had an inpatient hospitalization. Significantly lower proportions of these beneficiaries used home health services, had a nursing home stay, or needed hospice care.

Table 1  
1999 Baseline Summary of All Claims for Patients with a  
Primary Diagnosis of Selected Musculoskeletal and  
Related Medical Conditions

File	Medicare Beneficiaries	Claims	Medicare Payments	Average Payment Per Beneficiary	Average Payment Per Claim
All Files	5,811,440	215,998,220	\$41,362,447,475	\$7,117.42	\$191.49
DME	1,697,640	9,433,780	\$1,135,903,530	\$669.11	\$120.41
Home Health	684,960	2,338,260	\$1,849,526,230	\$2,700.20	\$790.98
Hospice	58,400	141,720	\$262,461,482	\$4,494.20	\$1,851.97
Inpatient	1,651,980	3,115,040	\$19,899,049,229	\$12,045.58	\$6,388.06
Outpatient	4,710,980	28,758,020	\$4,205,937,375	\$892.79	\$146.25
Professional	5,790,340	171,467,460	\$11,698,392,594	\$2,020.33	\$68.23
SNF	350,480	743,940	\$2,311,177,035	\$6,594.32	\$3,106.67

Inpatient services, \$19.9 billion, accounted for nearly half (48.1%) of total 1999 Medicare program payments for these beneficiaries, with professional services (\$11.7 billion) and SNF payments (\$2.3 billion) accounting for an additional 10.2 percent and 5.6 percent, respectively. On average, Medicare program payments per beneficiary were highest for inpatient hospital services (\$12,046), SNF care (\$6,594) and hospice services (\$4,494) and lowest for outpatient services (\$893) and DME (\$669).

Comparison of Beneficiaries Receiving Chiropractic Services with Those Treated by Other Provider Types

The next step in the analysis was to compare the patterns of service utilization and payments of beneficiaries who received Chiropractic services with beneficiaries treated by other providers. To complete this analysis, the 5.8 million Medicare beneficiaries identified in the extract were divided into two groups based on the occurrence of provider specialty code “35 – Chiropractic” on their Part B Physician/Supplier and DME claims. The results are summarized in Table 2 and Table 3.

Table 2 compares the use of all medical services and their associated Medicare payments for these two groups of beneficiaries. In Table 3, the comparison is restricted to just



claims for the treatment of the selected medical conditions that formed the basis of the initial data extract.

### All Claims

As shown in Tables 2 and 3, approximately 1.6 million (26.8 percent) of the 5.8 million Medicare beneficiaries with primary diagnoses of selected musculoskeletal and related medical conditions received treatment from Doctors of Chiropractic. In comparing these beneficiaries with those who did not receive Chiropractic care, several interesting results stand out.

Table 2  
Summary of All Claims for Beneficiaries with a Primary Diagnosis of  
Selected Musculoskeletal and Related Medical Conditions  
1999

Beneficiary Type	File	Medicare Beneficiaries	Claims	Medicare Payments	Average Payment Per Beneficiary	Average Payment Per Claim
Beneficiary not seen by a Doctor of Chiropractic	All Files	4,253,720	164,013,400	\$34,467,924,349	\$8,103.01	\$210.15
	DME	1,365,200	7,911,360	\$969,683,906	\$710.29	\$122.57
	Home Health	592,940	2,096,620	\$1,677,461,033	\$2,829.06	\$800.08
	Hospice	51,640	125,980	\$233,721,204	\$4,525.97	\$1,855.22
	Inpatient	1,356,480	2,635,500	\$16,832,524,858	\$12,408.97	\$6,386.84
	Outpatient	3,554,480	22,771,980	\$3,435,468,009	\$966.52	\$150.86
	Professional	4,232,620	127,800,140	\$9,213,109,498	\$2,176.69	\$72.09
	SNF	309,620	671,820	\$2,105,955,841	\$6,801.74	\$3,134.70
Beneficiary seen by a Doctor of Chiropractic	All Files	1,557,720	51,984,820	\$6,894,523,126	\$4,426.03	\$132.63
	DME	332,440	1,522,420	\$166,219,623	\$500.00	\$109.18
	Home Health	92,020	241,640	\$172,065,197	\$1,869.87	\$712.07
	Hospice	6,760	15,740	\$28,740,278	\$4,251.52	\$1,825.94
	Inpatient	295,500	479,540	\$3,066,524,371	\$10,377.41	\$6,394.72
	Outpatient	1,156,500	5,986,040	\$770,469,365	\$666.21	\$128.71
	Professional	1,557,720	43,667,320	\$2,485,283,097	\$1,595.46	\$56.91
	SNF	40,860	72,120	\$205,221,194	\$5,022.55	\$2,845.55

Examination of the data for all claims for all services (and their associated Medicare payments) utilized during 1999 (Table 2) reveals some very clear differences between the two groups of beneficiaries. Beneficiaries treated by Doctors of Chiropractic comprise 26.8 percent of the beneficiaries with any of the selected ICD-9 diagnosis codes and 24.1 percent of their claims. However, they generated only 16.7 percent of total Medicare payments, a significantly lower proportion than their numbers would suggest. Recipients of Chiropractic care averaged 33.4 claims per beneficiary in 1999, 5 fewer claims per person than beneficiaries not receiving Chiropractic care. More importantly, their per capita payments for all Medicare services utilized during 1999 were nearly 50 percent lower than those for recipients who did not receive Chiropractic care (\$4,426 versus

\$8,103). Similarly, the average payment per claim for all Medicare services used during 1999 is almost 40 percent lower for beneficiaries who received Chiropractic services (\$132.63 versus \$210.15). Regardless of the type of claim, average payment per beneficiary was substantially lower for beneficiaries treated by a Doctor of Chiropractic. With only two exceptions (e.g., hospice and inpatient hospital), similar findings are noted for average payment per claim. However, even in the case of these two exceptions, the average costs per service are nearly identical for the two groups of beneficiaries. Therefore, when all claims for all services are examined, it would appear that Medicare beneficiaries who were treated by Doctors of Chiropractic during 1999 had fewer Medicare claims per capita and lower average Medicare payments for all Medicare services than those who did not.

### Selected Musculoskeletal and Related Claims Only

When the comparison of utilization and Medicare payments is restricted to just claims for the selected musculoskeletal and related claims used to define the initial extract, the overall results, while similar, also include some key findings (Table 3). For example, while constituting 26.8 percent of Medicare beneficiaries, beneficiaries who received Chiropractic care during 1999 generated 42.3 percent of such claims. They averaged nearly 8 claims per capita compared to only 4 claims per capita for beneficiaries who did not receive Chiropractic care.

Table 3  
Summary of All Musculoskeletal and Related Claims for Patients with a Primary  
Diagnosis of Selected Musculoskeletal and Related Medical Conditions  
1999

Beneficiary Type	File	Medicare Beneficiaries	Claims	Medicare Payments	Average Payment Per Beneficiary	Average Payment Per Claim
Beneficiary not seen by a Doctor of Chiropractic	All Files	4,253,720	16,940,020	\$2,524,698,640	\$593.53	\$149.04
	DME	208,220	489,320	\$53,808,762	\$258.42	\$109.97
	Home Health	55,060	114,160	\$84,816,650	\$1,540.44	\$742.96
	Hospice	80	140	\$274,067	\$3,425.84	\$1,957.62
	Inpatient	142,060	157,500	\$858,751,277	\$6,044.99	\$5,452.39
	Outpatient	1,578,360	2,985,540	\$390,056,484	\$247.13	\$130.65
	Professional	3,916,100	13,163,860	\$1,044,195,022	\$266.64	\$79.32
	SNF	19,600	29,500	\$92,796,379	\$4,734.51	\$3,145.64
Beneficiary seen by a Doctor of Chiropractic	All Files	1,557,720	12,439,080	\$592,095,669	\$380.10	\$47.60
	DME	21,940	40,340	\$3,841,226	\$175.08	\$95.22
	Home Health	4,560	8,320	\$5,472,240	\$1,200.05	\$657.72
	Inpatient	18,220	20,320	\$104,815,244	\$5,752.76	\$5,158.23
	Outpatient	207,720	408,300	\$54,193,176	\$260.90	\$132.73
	Professional	1,556,640	11,958,900	\$414,821,202	\$266.48	\$34.69
	SNF	1,820	2,900	\$8,952,580	\$4,919.00	\$3,087.10

However, despite the fact that they comprise slightly more than one-fourth of all Medicare beneficiaries in the extract and had twice as many claims per capita (over 40 percent of all services associated with the selected diagnoses), Medicare payments for the treatment of these selected medical conditions for beneficiaries receiving Chiropractic care constituted only 19 percent of all Medicare payments for the treatment of these conditions. Furthermore, beneficiaries treated by Doctors of Chiropractic had average payments per capita that were nearly 40 percent lower than those for beneficiaries who received care from other providers (\$380.10 versus \$593.53). Also, average payment per claim for the treatment of these medical conditions was nearly two-thirds lower for beneficiaries receiving Chiropractic care compared to beneficiaries not seen by Doctors of Chiropractic (\$47.60 versus \$149.04). As with the summary of all claims (see above), with few exceptions, regardless of the type of claim, average payment per beneficiary and average payment per claim were lower for beneficiaries who received Chiropractic care. Therefore, Medicare beneficiaries treated by Doctors of Chiropractic averaged twice as many claims per capita but generated significantly lower Medicare payments than beneficiaries receiving services from other providers.

#### Subsequent Use of Medicare Services

Using a methodology developed for a previous study,<sup>4</sup> further analysis was conducted to examine subsequent service utilization patterns for both groups of beneficiaries. The analysis consists of chronologically ordering the claims data for each beneficiary and summarizing the information by “encounter.” An encounter is defined as a chronologically contiguous episode of care at a particular provider type from a single SAF file. Because date of service is not listed on the claims, the chronological order was determined by using incurred quarter and claim receipt date. Conflicts in the ordering of records from different files are resolved using a predetermined sequence of files (Inpatient, SNF, HHA, outpatient, hospice, Part B physician/supplier, and DME). Only the first contact with a primary diagnosis of one of the selected medical conditions and the subsequent two encounters for Medicare services are included in this analysis. Results of the analysis of subsequent use of Medicare services are presented in Tables 4 and 5.

#### All Claims

Starting with the first encounter during 1999 for any of the selected ICD-9 diagnosis codes used to define the initial extract, we began our analysis of beneficiaries’ subsequent contacts with the Medicare program by examining the next two encounters for all services (Tables 4). Presented in Table 4 are a count of beneficiaries, total payments, and average payment per beneficiary for each of the first three encounters, including the initial encounter containing a claim with any of the selected primary diagnosis codes.

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<sup>4</sup> Muse & Associates, *An Analysis of Rehabilitation Services “Flow” Patterns and Payments by Provider Setting for Medicare Beneficiaries*, Washington, DC: November 1997.

Table 4  
 Subsequent Encounters with the Medicare Program for  
 Beneficiaries with a Primary Diagnosis of Selected  
 Musculoskeletal and Related Medical Conditions  
 All Claims: 1999  
 (by treatment status and contact)

Beneficiary Type	Encounter	Medicare Beneficiaries	Percent of Medicare Beneficiaries	Medicare Payments	Medicare Payment Per Beneficiary
Beneficiary not seen by a Doctor of Chiropractic	First	4,253,720	100.0%	\$1,463,955,180	\$344.16
	Second	3,383,140	79.5%	\$2,442,063,163	\$721.83
	Third	3,117,840	73.3%	\$1,497,207,909	\$480.21
Beneficiary seen by a Doctor of Chiropractic	First	1,557,720	100.0%	\$589,136,161	\$378.20
	Second	1,079,260	69.3%	\$547,406,907	\$507.21
	Third	1,033,100	66.3%	\$408,319,296	\$395.24

In general, the majority of Medicare beneficiaries in both groups had multiple encounters with the Medicare program in 1999. Of the beneficiaries not treated by Doctors of Chiropractic, approximately 80 percent had a second encounter with the Medicare program during 1999, following their initial claim for one of the selected primary diagnoses. Nearly three-quarters (73.3 percent) of these beneficiaries also had a third encounter later that year. By comparison, 69 percent of beneficiaries who received Chiropractic care had a second encounter with the Medicare program and 66 percent had a third encounter during 1999.

Interestingly, beneficiaries not receiving Chiropractic services had average payments per beneficiary for all services for their first encounter with the Medicare program during 1999 that were nearly 10 percent lower than average payments for beneficiaries who received Chiropractic services (\$344.16 versus \$378.20). However, for the second and third encounters, the situation is reversed. Beneficiaries receiving Chiropractic care had significantly lower average Medicare payments per encounter.

## Selected Musculoskeletal and Related Claims Only

Considering only claims for the selected musculoskeletal and related diagnoses, the analysis of the first three encounters with the Medicare program during 1999 was repeated. The results of this analysis are presented in Table 5.

The data presented in Table 5 indicate several interesting findings. Not surprising, a much smaller proportion of beneficiaries with any of the selected musculoskeletal and related medical conditions during 1999 had a second or third encounter with the Medicare program for these conditions than was the case with their overall use of Medicare services. The great majority of treatments for these medical conditions were received in the same provider setting. However, as was the case with their use of all services, a much lower proportion of beneficiaries treated by Doctors of Chiropractic had a second or third encounter with the Medicare program.

Table 5  
Subsequent Contacts with the Medicare Program for  
Beneficiaries with a Primary Diagnosis of Selected  
Musculoskeletal and Related Medical Conditions: 1999  
Musculoskeletal and Related Claims Only  
(by treatment status and contact)

Beneficiary Type	Encounter	Medicare Beneficiaries	Percent of Medicare Beneficiaries	Medicare Payments	Medicare Payment Per Beneficiary
Beneficiary not seen by a Doctor of Chiropractic	First	4,253,700	100.0%	\$806,570,036	\$189.62
	Second	1,447,700	34.0%	\$546,358,964	\$377.40
	Third	831,200	19.5%	\$289,624,275	\$348.44
Beneficiary seen by a Doctor of Chiropractic	First	1,557,720	100.0%	\$329,015,857	\$211.22
	Second	222,040	14.3%	\$69,002,782	\$310.77
	Third	169,880	10.9%	\$48,738,672	\$286.90

Medicare beneficiaries receiving Chiropractic care had average Medicare payments for their first encounter for these selected musculoskeletal and related medical conditions that were approximately 11 percent higher than the average payment for beneficiaries treated by other providers. This may be due, at least in part, to the fact that beneficiaries receiving Chiropractic care for the treatment of these medical conditions averaged twice as many claims per capita compared to beneficiaries who received treatment from other providers. Thus, when aggregated over the entire first encounter, the total cost for that encounter may be higher for beneficiaries receiving Chiropractic care, even though their average Medicare payment per claim was significantly lower. For those beneficiaries who had a second and/or third

encounter for these conditions during 1999, both the proportion of beneficiaries having second or third encounters and the average Medicare payments per encounter were significantly lower for beneficiaries treated by Doctors of Chiropractic.

**Why are there Differences Between Beneficiaries Seen and Not Seen by Doctors of Chiropractic?**

Our comparative analysis of the use of and payments for services by Medicare beneficiaries who were/were not treated by Doctors of Chiropractic for these selected primary diagnoses during 1999 indicates that there are differences between the two groups. In general, beneficiaries receiving Chiropractic care had lower average payments per capita and per claim for all Medicare services and for claims associated with the treatment of their musculoskeletal and related medical problems. With the exception of the first encounter involving a principal diagnosis of one of these selected diagnoses, they also had lower average payments per beneficiary for the subsequent two encounters with the Medicare system.

Given these findings, what factors explain the differences between these two groups of Medicare beneficiaries? Is it gender, age, and/or acuity? First we examine gender. Then we consider the age distributions of the two groups of beneficiaries and, finally, acuity.

Gender

As shown in Table 6, a slightly lower proportion of females received treatment from Doctors of Chiropractic than from other provider types (58.8. percent versus 63.7 percent). Conversely, a higher proportion of males received Chiropractic care than treatments from other providers (41.2 percent versus 36.3 percent).

Table 6  
Number of Beneficiaries  
by Gender and Treatment Status

Beneficiary Type	Female	Male	Total
Beneficiary not seen by a Doctor of Chiropractic	2,710,420	1,543,300	4,253,720
Percent	63.7%	36.3%	100.0%
Beneficiary seen by a Doctor of Chiropractic	916,180	641,540	1,557,720
Percent	58.8%	41.2%	100.0%
Total	3,626,600	2,184,840	5,811,440

While these differences, on the order of 5 percentage points, exist, they do not appear to be sufficiently large by themselves to account for the service utilization and payment differences between the two groups of beneficiaries. Gender, therefore, does not appear to have high explanatory power to differentiate between these groups.

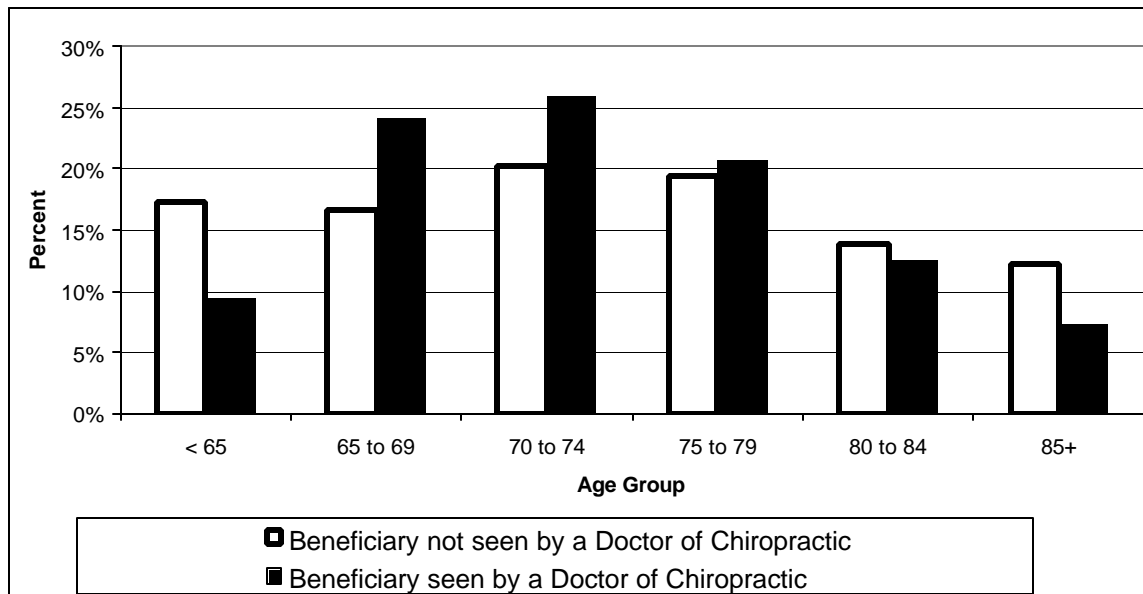
## Age

Data on the age distribution of the two groups of beneficiaries are presented in Table 7 and Figure 1. Examination of the data suggests some potentially important differentiating factors. It is clear from a review of Table 7 and Figure 1 that Medicare beneficiaries under age 65 (i.e., the “disabled” and “ESRD” populations) are much less likely to have received Chiropractic care. Likewise, among beneficiaries 80 years of age and older, a smaller proportion were treated by Doctors of Chiropractic. Conversely, a higher percentage of beneficiaries between 65 and 74 years of age received Chiropractic care. For beneficiaries 75-79 years of age, approximately the same proportion did and did not receive Chiropractic care. This suggests that medical doctors, not Doctors of Chiropractic, treat older and/or sicker Medicare beneficiaries. Therefore, acuity may be an important factor in explaining differences in the use of Chiropractic services among Medicare beneficiaries.

Table 7  
Age Distribution of Beneficiaries with a Primary  
Diagnosis of Selected Musculoskeletal and Related Medical Conditions  
(by gender and treatment status)

Beneficiary Type	Age Group	Female	% Female	Male	% Male	Total	%
Beneficiary not seen by a Doctor of Chiropractic	64 and Younger	378,080	13.9%	359,840	23.3%	737,920	17.3%
	65 to 69	447,020	16.5%	264,980	17.2%	712,000	16.7%
	70 to 74	549,400	20.3%	310,840	20.1%	860,240	20.2%
	75 to 79	548,640	20.2%	281,380	18.2%	830,020	19.5%
	80 to 84	402,140	14.8%	187,920	12.2%	590,060	13.9%
	85 and Older	385,140	14.2%	138,340	9.0%	523,480	12.3%
	Total	2,710,420	100.0%	1,543,300	100.0%	4,253,720	100.0%
Beneficiary seen by a Doctor of Chiropractic	64 and Younger	77,400	8.4%	70,180	10.9%	147,580	9.5%
	65 to 69	216,880	23.7%	159,460	24.9%	376,340	24.2%
	70 to 74	233,480	25.5%	170,140	26.5%	403,620	25.9%
	75 to 79	193,280	21.1%	128,540	20.0%	321,820	20.7%
	80 to 84	120,920	13.2%	74,480	11.6%	195,400	12.5%
	85 and Older	74,220	8.1%	38,740	6.0%	112,960	7.3%
	Total	916,180	100.0%	641,540	100.0%	1,557,720	100.0%

Figure 1  
Age Distribution of Beneficiaries with a Primary  
Diagnosis of Selected Musculoskeletal and Related Medical Conditions



### Removing Acuity

There is no simple or direct way to measure medical acuity from the data included in the 1999 5 Percent SAF. Accordingly, to assess whether acuity is important in differentiating beneficiaries who did/did not receive Chiropractic care during 1999 for the treatment of these selected medical diagnoses, we used an approach that deleted the institutionalized population which, by definition, has high medical acuity.

To test this hypothesis, we deleted beneficiaries with inpatient hospital, SNF, and/or hospice claims during 1999 and reran the service utilization and cost analyses. Controlling for acuity of beneficiaries' overall medical conditions results in a mostly ambulatory patient population, the type of population most likely to seek out and benefit from Chiropractic care. The findings from our reanalysis are presented in Tables 8 and 9.

### All Claims

Presented in Table 8 are analytical results from the reanalysis of all claims for primarily ambulatory Medicare beneficiaries. As shown in Table 8, beneficiaries treated by



Doctors of Chiropractic had lower overall payments per claim and per beneficiary for all Medicare services used during 1999 than beneficiaries receiving treatment from other providers. Likewise, for every type of claim, Medicare payments per patient and per claim are substantially lower for beneficiaries who received Chiropractic care for their musculoskeletal and related medical conditions.

Table 8  
Summary of All Claims for Beneficiaries with a Primary  
Diagnosis of Selected Musculoskeletal and Related Medical Conditions  
(Inpatient, Skilled Nursing Facility, and Hospice Beneficiaries Deleted)  
1999

Beneficiary Type	File	Medicare Beneficiaries	Claims	Medicare Payments	Average Payment Per Beneficiary	Average Payment Per Claim
Beneficiary not seen by Doctor of Chiropractic	All Files	2,878,900	77,855,140	\$5,815,128,170	\$2,019.91	\$74.69
	DME	673,080	3,155,200	\$382,771,913	\$568.69	\$121.31
	Home Health	109,560	424,500	\$308,916,874	\$2,819.61	\$727.72
	Outpatient	2,295,760	12,170,100	\$1,543,707,105	\$672.42	\$126.84
	Professional	2,861,760	62,105,340	\$3,579,732,279	\$1,250.88	\$57.64
Beneficiary seen by Doctor of Chiropractic	All Files	1,260,140	34,251,780	\$1,937,014,882	\$1,537.14	\$56.55
	DME	208,960	825,780	\$84,162,077	\$402.77	\$101.92
	Home Health	15,460	47,080	\$32,680,646	\$2,113.88	\$694.15
	Outpatient	886,360	3,885,300	\$440,352,524	\$496.81	\$113.34
	Professional	1,260,140	29,493,620	\$1,379,819,635	\$1,094.97	\$46.78

#### Selected Musculoskeletal and Related Claims Only

The data were reanalyzed with claims for the selected musculoskeletal and related diagnoses only (Table 9). As shown in Table 9, on the next page, primarily ambulatory beneficiaries treated by Doctors of Chiropractic had lower overall Medicare payments per capita and per claim than beneficiaries treated by other provider types. However, Chiropractic patients did generate slightly higher average Medicare payments per beneficiary for Outpatient services and moderately higher average payments per beneficiary for Professional services. In this case of Professional services, the higher average payment per beneficiary is the result of a higher number of beneficiary visits. For Outpatient services, the average payments per claim are nearly identical for the two groups of beneficiaries.

Table 9  
 Summary of Musculoskeletal and Related Claims Only for Patients with a Primary  
 Diagnosis of Selected Musculoskeletal and Related Medical Conditions:  
 (Inpatient, Skilled Nursing Facility, and Hospice Beneficiaries Deleted)  
 1999

Beneficiary Type	File	Medicare Beneficiaries	Claims	Medicare Payments	Average Payment Per Beneficiary	Average Payment Per Claim
Beneficiary not seen by Doctor of Chiropractic	All Files	2,878,900	10,291,700	\$808,179,022	\$280.72	\$78.53
	DME	113,020	250,120	\$25,698,273	\$227.38	\$102.74
	Home Health	13,140	29,840	\$19,834,639	\$1,509.49	\$664.70
	Outpatient	1,050,020	1,917,180	\$244,832,344	\$233.17	\$127.70
	Professional	2,646,320	8,094,560	\$517,813,766	\$195.67	\$63.97
Beneficiary seen by Doctor of Chiropractic	All Files	1,260,140	9,911,340	\$337,431,780	\$267.77	\$34.05
	DME	13,000	22,700	\$1,917,973	\$147.54	\$84.49
	Home Health	780	1,520	\$937,461	\$1,201.87	\$616.75
	Outpatient	146,240	276,080	\$35,705,762	\$244.16	\$129.33
	Professional	1,259,300	9,611,040	\$298,870,584	\$237.33	\$31.10

In conclusion, these results strongly suggest that Chiropractic care reduces per beneficiary costs to the Medicare program under current law.

### **Potential Future Savings Under Medicare and/or the Addition of Prescription Drugs**

Congress and the President are committed to Medicare reform and establishment of some form of a prescription drug benefit for the Medicare population.

#### **Medicare Reform**

A wide variety of approaches and proposals exist for Medicare reform. Some address the role of the private sector in the program. Others focus on incentives that could lead to some over utilization of services by the elderly. These proposals may result in either increased or decreased access to Chiropractic services. The findings of our current law analysis strongly suggest that decreased access to Chiropractic services would increase program costs. This is contrary to the purpose of the Medicare program, which is to provide cost-effective health care services to the broadest group of Medicare beneficiaries. Attention should, therefore, be paid to access to Chiropractic Services during the Medicare reform debate.

## **A Prescription Drug Benefit**

Doctors, not beneficiaries, write prescription drug scripts. Extensive research shows that the more visits a person has to a medical doctor, the more prescriptions they are likely to receive. Our analysis found that, overall, those beneficiaries who used Chiropractic services, have lower medical doctor costs and, by extrapolation, lower prescription drug costs. Thus, enhanced access to Chiropractic services could drive down the number of prescriptions even further. Therefore, some savings would probably accrue to the Medicare program if access to Chiropractic services was increased.

(V:ACA/Medicare 2001/Report)

## **Appendix A**

### **List of Diagnoses Commonly Treated By Doctors of Chiropractic**

## Appendix A

### List of Diagnoses Commonly Treated By Doctors of Chiropractic

#### ICD-9-CM CODES

International Classification of Diseases, 9th Revision, Clinical Modification Codes (ICD-9-CM Codes) are designed to classify illnesses, injuries, and patient-health care provider encounters for services.

**NOTE:** This is not an all-inclusive list of ICD-9 codes, and is provided simply as a list of commonly used codes by DCs.

ICD-9-CM Codes

#### ICD CODES – NUMERIC CATEGORY LISTING

<i>CODE</i>	<i>DESCRIPTION</i>
<b>320-389.1.1</b>	<b>Diseases of the Nervous System and Sense Organs</b>
333.83	SPASMODIC TORTICOLLIS
346	MIGRAINE
346.0	CLASSIC MIGRAINE
346.1	COMMON MIGRAINE
346.2	VARIANTS OF MIGRAINE
346.8	OTHER FORMS OF MIGRAINE
346.9	MIGRAINE, UNSPECIFIED
350.1	TRIGEMINAL NEURALGIA
350.2	ATYPICAL FACE PAIN
351	FACIAL NERVE DISORDER
351.0	BELL'S Palsy
352	DISORDERS OF OTHER CRANIAL NERVES
352.3	DISORDERS OF PNEUMOGASTRIC (10TH) NERVE
352.9	UNSPECIFIED DISORDER OF CRANIAL NERVES
353	NERVE ROOT AND PLEXUS DISORDERS
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
353.9	UNSPECIFIED NERVE ROOT AND PLEXUS DISORDER

354 MONONEURITIS UPPER LIMB  
 354.0 CARPAL TUNNEL SYNDROME  
 354.1 OTHER LESION OF MEDIAN NERVE  
 354.2 LESION OF ULNAR NERVE  
 354.3 LESION OF RADIAL NERVE  
 354.4 CAUSALGIA OF UPPER LIMB  
 354.5 MONONEURITIS MULTIPLEX  
 354.8 OTHER MONONEURITIS OF UPPER LIMB  
 354.9 MONONEURITIS OF UPPER LIMB, UNSPECIFIED  
 355 MONONEURITIS LEG  
 355.0 LESION OF SCIATIC NERVE  
 355.1 MERALGIA PARESTHETICA  
 355.4 LESION OF MEDIAL POPLITEAL NERVE  
 355.5 TARSAL TUNNEL SYNDROME  
 381.4 NONSUPPURATIVE OTITIS MEDIA, NOT SPECIFIED AS ACUTE  
 OR CHRONIC  
 386 VERTIGINOUS SYNDROME  
 386.0 MENIERE'S DISEASE  
 386.3 LABYRINTHITIS, UNSPECIFIED  
 386.9 UNSPECIFIED VERTIGINOUS SYNDROMES AND  
 LABYRINTHINE DISORDERS

**390-459 Diseases of the Circulatory System**

401.9 UNSPECIFIED ESSENTIAL HYPERTENSION

**520-579 Diseases of the Digestive System**

524.6 TEMPOROMANDIBULAR JOINT DISORDERS, UNSPECIFIED

**630-677 Complications of Pregnancy, Childbirth, and Puerperium**

648.7.1.1.1.1 BONE AND JOINT DISORDERS OF BACK, PELVIS, AND LOWER  
 LIMBS OF MOTHER, COMPLICATING PREGNANCY,  
 CHILDBIRTH, OR THE PUERPERIUM

**710-739 Diseases of the Neuromusculoskeletal System and Connective Tissue**

710.4 POLYMYOSITIS  
 714.3 CHRONIC OR UNSPECIFIED POLYARTICULAR JUVENILE  
 RHEUMATOID ARTHRITIS  
 715 OSTEOARTHROSIS, GENERALIZED  
 715.0 OSTEOARTHROSIS AND ALLIED DISORDERS  
 715.00 OSTEOARTHROSIS, GENERALIZED, INVOLVING UNSPECIFIED  
 SITE  
 715.04 OSTEOARTHROSIS, GENERALIZED, INVOLVING HAND  
 715.09 OSTEOARTHROSIS, GENERALIZED, INVOLVING MULTIPLE  
 SITES  
 715.1 OSTEOARTHROSIS, LOCALIZED, PRIMARY

715.11 OSTEOARTHRISIS, LOCALIZED, PRIMARY, INVOLVING SHOULDER REGION

715.15 OSTEOARTHRISIS, LOCALIZED, PRIMARY, INVOLVING PELVIC REGION AND THIGH

715.18 OSTEOARTHRISIS, LOCALIZED, PRIMARY, INVOLVING OTHER SPECIFIED SITES

715.2 OSTEOARTHRISIS, LOCALIZED, SECONDARY

715.3 OSTEOARTHRISIS, LOCALIZED, NOT SPECIFIED WHETHER PRIMARY OR SECONDARY

715.30 OSTEOARTHRISIS, LOCALIZED, NOT SPECIFIED WHETHER PRIMARY OR SECONDARY, UNSPECIFIED

715.38 OSTEOARTHRISIS, LOCALIZED, NOT SPECIFIED WHETHER PRIMARY OR SECONDARY, INVOLVING OTHER SPECIFIED SITES

715.8 OSTEOARTHRISIS INVOLVING OR WITH MENTION OF MORE THAN ONE SITE, BUT NOT SPECIFIED AS GENERALIZED

715.80 OSTEOARTHRISIS INVOLVING OR WITH MENTION OF MORE THAN ONE SITE, BUT NOT SPECIFIED AS GENERALIZED, AND INVOLVING UNSPECIFIED SITE, UNSPECIFIED

715.89 OSTEOARTHRISIS INVOLVING OR WITH MENTION OF MULTIPLE SITES, BUT NOT SPECIFIED AS GENERALIZED

715.9 OSTEOARTHRISIS, UNSPECIFIED WHETHER GENERALIZED OR LOCALIZED, INVOLVING UNSPECIFIED SITE

715.90 OSTEOARTHRISIS, UNSPECIFIED WHETHER GENERALIZED OR LOCALIZED, UNSPECIFIED

715.96 OSTEOARTHRISIS, UNSPECIFIED WHETHER GENERALIZED OR LOCALIZED, INVOLVING LOWER LEG

715.98 OSTEOARTHRISIS, UNSPECIFIED WHETHER GENERALIZED OR LOCALIZED, INVOLVING OTHER SPECIFIED SITES

716.1 TRAUMATIC ARTHROPATHY

716.66 UNSPECIFIED MONOARTHRITIS INVOLVING LOWER LEG

716.9 UNSPECIFIED ARTHROPATHY

716.90 UNSPECIFIED ARTHROPATHY, SITE UNSPECIFIED, UNSPECIFIED

716.91 UNSPECIFIED ARTHROPATHY INVOLVING SHOULDER REGION

716.95 UNSPECIFIED ARTHROPATHY INVOLVING PELVIC REGION AND THIGH

716.96 UNSPECIFIED ARTHROPATHY INVOLVING LOWER LEG

716.97 UNSPECIFIED ARTHROPATHY INVOLVING ANKLE AND FOOT

716.99 UNSPECIFIED ARTHROPATHY INVOLVING MULTIPLE SITES

717 INTERNAL DERANGEMENT OF KNEE

717.5 DERANGEMENT OF MENISCUS, NOT ELSEWHERE CLASSIFIED

717.7 CHONDROMALACIA OF PATELLA

717.8 OTHER INTERNAL DERANGEMENT OF KNEE

717.9 UNSPECIFIED INTERNAL DERANGEMENT OF KNEE

718 OTHER DERANGEMENT OF JOINT

718.0 ARTICULAR CARTILAGE DISORDER  
 718.00 ARTICULAR CARTILAGE DISORDER, UNSPECIFIED  
 718.4 CONTRACTURE OF JOINT  
 718.5 ANKYLOSIS OF JOINT  
 718.50 ANKYLOSIS OF JOINT, UNSPECIFIED  
 718.55 ANKYLOSIS OF JOINT, PELVIS  
 718.85 OTHER JOINT DERANGEMENT, NOT ELSEWHERE CLASSIFIED  
 718.88 OTHER JOINT DERANGEMENT, NOT ELSEWHERE CLASSIFIED,  
 INVOLVING OTHER SPECIFIED SITES  
 718.98 UNSPECIFIED DERANGEMENT OF JOINT OF OTHER SPECIFIED  
 SITES  
 719.4 PAIN IN JOINT  
 719.40 PAIN IN JOINT, UNSPECIFIED  
 719.41 PAIN IN JOINT INVOLVING SHOULDER REGION  
 719.42 PAIN IN JOINT INVOLVING UPPER ARM  
 719.43 PAIN IN JOINT INVOLVING FOREARM  
 719.44 PAIN IN JOINT INVOLVING HAND  
 719.45 PAIN IN JOINT INVOLVING PELVIC REGION AND THIGH  
 719.46 PAIN IN JOINT INVOLVING LOWER LEG  
 719.47 PAIN IN JOINT INVOLVING ANKLE AND FOOT  
 719.48 PAIN IN JOINT INVOLVING OTHER SPECIFIED SITES  
 719.49 PAIN IN JOINT INVOLVING MULTIPLE SITES  
 719.5 STIFFNESS OF JOINT, NOT ELSEWHERE CLASSIFIED  
 719.50 STIFFNESS OF JOINT, NOT ELSEWHERE CLASSIFIED,  
 UNSPECIFIED  
 719.51 STIFFNESS OF JOINT, NOT ELSEWHERE CLASSIFIED,  
 INVOLVING SHOULDER REGION  
 719.55 STIFFNESS OF JOINT, NOT ELSEWHERE CLASSIFIED,  
 INVOLVING UNSPECIFIED SITE  
 719.58 STIFFNESS OF JOINT, NOT ELSEWHERE CLASSIFIED,  
 INVOLVING OTHER SPECIFIED SITES  
 719.59 STIFFNESS OF JOINT, NOT ELSEWHERE CLASSIFIED,  
 INVOLVING MULTIPLE SITES  
 719.6 OTHER SYMPTOMS REFERABLE TO JOINT  
 719.60 OTHER SYMPTOMS REFERABLE TO JOINT, UNSPECIFIED  
 719.65 OTHER SYMPTOMS REFERABLE TO JOINT, PELVIS  
 719.68 OTHER SYMPTOMS REFERABLE TO JOINT, INVOLVING OTHER  
 SPECIFIED SITES  
 719.69 OTHER SYMPTOMS REFERABLE TO JOINT, INVOLVING  
 MULTIPLE SITES  
 719.7 DIFFICULTY IN WALKING  
 719.70 DIFFICULTY IN WALKING, UNSPECIFIED  
 719.75 DIFFICULTY IN WALKING, PELVIS  
 719.8 OTHER SPECIFIED DISORDERS OF JOINT, INVOLVING OTHER  
 SPECIFIED SITE



719.80 OTHER SPECIFIED DISORDERS OF JOINT, INVOLVING OTHER SPECIFIED SITE, UNSPECIFIED

719.85 OTHER SPECIFIED DISORDERS OF JOINT, INVOLVING OTHER SPECIFIED SITE, PELVIS

719.88 OTHER SPECIFIED DISORDERS OF JOINT, INVOLVING OTHER SPECIFIED SITES

719.89 OTHER SPECIFIED DISORDERS OF JOINT, INVOLVING MULTIPLE SITES

719.9 UNSPECIFIED DISORDER OF JOINT

719.90 UNSPECIFIED DISORDER OF JOINT, UNSPECIFIED

719.95 UNSPECIFIED DISORDER OF JOINT, PELVIS

719.98 UNSPECIFIED DISORDER OF JOINT

719.99 UNSPECIFIED DISORDER OF JOINT

720 ANKYLOSING SPONDYLITIS AND OTHER INFLAMMATORY SPONDYLOPATHIES

720.0 ANKYLOSING SPONDYLITIS

720.1 SPINAL ENTHESOPATHY

720.2 SACROILIITIS, NOT ELSEWHERE CLASSIFIED

720.8 OTHER INFLAMMATORY SPONDYLOPATHIES

720.81 INFLAMMATORY SPONDYLOPATHIES IN DISEASES CLASSIFIED ELSEWHERE

720.9 UNSPECIFIED INFLAMMATORY SPONDYLOPATHY

721 SPONDYLOSIS AND ALLIED DISORDERS

721.0 CERVICAL SPONDYLOSIS WITHOUT MYELOPATHY

721.1 CERVICAL SPONDYLOSIS WITH MYELOPATHY

721.2 THORACIC SPONDYLOSIS WITHOUT MYELOPATHY

721.3 LUMBOSACRAL SPONDYLOSIS WITHOUT MYELOPATHY

721.4 THORACIC OR LUMBAR SPONDYLOSIS WITH MYELOPATHY

721.41 SPONDYLOSIS WITH MYELOPATHY, THORACIC REGION

721.42 SPONDYLOSIS WITH MYELOPATHY, LUMBAR REGION

721.5 KISSING SPINE

721.6 ANKYLOSING VERTEBRAL HYPEROSTOSIS

721.7 TRAUMATIC SPONDYLOPATHY

721.8 OTHER ALLIED DISORDERS OF SPINE

721.9 SPONDYLOSIS OF UNSPECIFIED SITE

721.90 SPONDYLOSIS OF UNSPECIFIED SITE WITHOUT MENTION OF MYELOPATHY

721.91 SPONDYLOSIS OF UNSPECIFIED SITE WITH MYELOPATHY

722 INTERVERTEBRAL DISC DISORDERS

722.0 DISPLACEMENT OF CERVICAL INTERVERTEBRAL DISC WITHOUT MYELOPATHY

722.1 DISPLACEMENT OF THORACIC OR LUMBAR INTERVERTEBRAL DISC WITHOUT MYELOPATHY

722.10 DISPLACEMENT OF LUMBAR INTERVERTEBRAL DISC WITHOUT MYELOPATHY

722.11 DISPLACEMENT OF THORACIC INTERVERTEBRAL DISC WITHOUT MYELOPATHY

722.2 DISPLACEMENT OF INTERVERTEBRAL DISC, SITE UNSPECIFIED, WITHOUT MYELOPATHY

722.3 SCHMORL'S NODES

722.30 SCHMORL'S NODES, UNSPECIFIED

722.31 SCHMORL'S NODES OF THORACIC REGION

722.32 SCHMORL'S NODES OF LUMBAR REGION

722.4 DEGENERATION OF CERVICAL INTERVERTEBRAL DISC

722.5 DEGENERATION OF THORACIC OR LUMBAR INTERVERTEBRAL DISC

722.51 DEGENERATION OF THORACIC OR THORACOLUMBAR INTERVERTEBRAL DISC

722.52 DEGENERATION OF LUMBAR OR LUMBOSACRAL INTERVERTEBRAL DISC

722.6 DEGENERATION OF INTERVERTEBRAL DISC, SITE UNSPECIFIED

722.7 INTERVERTEBRAL DISC DISORDER WITH MYELOPATHY

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

722.8 POSTLAMINECTOMY SYNDROME

722.80 POSTLAMINECTOMY SYNDROME, UNSPECIFIED

722.81 POSTLAMINECTOMY SYNDROME OF CERVICAL REGION

722.82 POSTLAMINECTOMY SYNDROME OF THORACIC REGION

722.83 POSTLAMINECTOMY SYNDROME OF LUMBAR REGION

722.9 OTHER AND UNSPECIFIED DISC DISORDER

722.90 OTHER AND UNSPECIFIED DISC DISORDER OF UNSPECIFIED 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 OTHER DISORDERS OF CERVICAL 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

723.6 PANNICULITIS SPECIFIED AS AFFECTING NECK

723.7 OSSIFICATION OF POSTERIOR LONGITUDINAL LIGAMENT IN CERVICAL REGION

723.8 OTHER SYNDROMES AFFECTING CERVICAL REGION

723.9 UNSPECIFIED NEUROMUSCULOSKELETAL DISORDERS AND SYMPTOMS REFERABLE TO NECK

724 OTHER AND UNSPECIFIED DISORDERS OF BACK

724.0 SPINAL STENOSIS, OTHER THAN CERVICAL

724.00 SPINAL STENOSIS OF UNSPECIFIED REGION

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

724.6 DISORDERS OF SACRUM

724.7 DISORDERS OF COCCYX

724.70 UNSPECIFIED DISORDERS OF COCCYX

724.79 OTHER DISORDERS OF COCCYX

724.8 OTHER SYMPTOMS REFERABLE TO BACK

724.9 OTHER UNSPECIFIED BACK DISORDERS

726 PERIPHERAL ENTHESOPATHIES AND ALLIED SYNDROMES

726.0 ADHESIVE CAPSULITIS OF SHOULDER

726.1 DISORDERS OF BURSAE AND TENDONS IN SHOULDER REGION, UNSPECIFIED

726.10 ROTATOR CUFF SYNDROME OF SHOULDER AND ALLIED DISORDERS

726.11 CALCIFYING TENDINITIS OF SHOULDER

726.2 OTHER AFFECTIONS OF SHOULDER REGION, NOT ELSEWHERE CLASSIFIED

726.32 LATERAL EPICONDYLITIS

726.91 EXOSTOSIS OF UNSPECIFIED SITE

727 OTHER DISORDERS OF SYNOVIUM, TENDON, AND BURSA

727.0 SYNOVITIS AND TENOSYNOVITIS

727.00 SYNOVITIS NOS

727.01 SYNOVITIS AND TENOSYNOVITIS IN DISEASES CLASSIFIED ELSEWHERE

727.04 RADIAL STYLOID TENOSYNOVITIS

727.05 OTHER TENOSYNOVITIS OF HAND AND WRIST

727.06 TENOSYNOVITIS OF FOOT AND ANKLE

727.09 OTHER SYNOVITIS AND TENOSYNOVITIS

727.2 SPECIFIC BURSTITIDES OFTEN OF OCCUPATIONAL ORIGIN

727.3 OTHER BURSTITIS DISORDERS

727.9 UNSPECIFIED DISORDER OF SYNOVIUM, TENDON, AND BURSA

728.1 MUSCULAR CALCIFICATION AND OSSIFICATION  
 728.10 CALCIFICATION AND OSSIFICATION, UNSPECIFIED  
 728.12 TRAUMATIC MYOSITIS OSSIFICANS  
 728.4 LAXITY OF LIGAMENT  
 728.5 HYPERMOBILITY SYNDROME  
 728.6 CONTRACTURE OF PALMAR FASCIA  
 728.7 OTHER FIBROMATOSSES OF MUSCLE, LIGAMENT, AND FASCIA  
 728.8 OTHER DISORDERS OF MUSCLE, LIGAMENT, AND FASCIA  
 728.81 INTERSTITIAL MYOSITIS  
 728.85 SPASM OF MUSCLE  
 728.9 UNSPECIFIED DISORDER OF MUSCLE, LIGAMENT, AND FASCIA  
 729 OTHER DISORDERS OF SOFT TISSUES  
 729.0 RHEUMATISM, UNSPECIFIED AND FIBROSITIS  
 729.1 MYALGIA AND MYOSITIS, UNSPECIFIED  
 729.2 NEURALGIA, NEURITIS, AND RADICULITIS, UNSPECIFIED  
 729.3 PANNICULITIS, UNSPECIFIED  
 729.30 PANNICULITIS  
 729.4 FASCIITIS, UNSPECIFIED  
 729.5 PAIN IN LIMB  
 729.8 OTHER NEUROMUSCULOSKELETAL SYMPTOMS REFERABLE  
 TO LIMBS  
 729.81 SWELLING OF LIMB  
 729.9 OTHER AND UNSPECIFIED DISORDERS OF SOFT TISSUE  
 734 PES PLANUS  
 736.81 UNEQUAL LEG LENGTH (ACQUIRED)  
 737.0 ADOLESCENT POSTURAL KYPHOSIS  
 737.1 KYPHOSIS  
 737.10 KYPHOSIS (ACQUIRED) (POSTURAL)  
 737.12 KYPHOSIS, POSTLAMINECTOMY  
 737.19 KYPHOSIS (ACQUIRED) OTHER  
 737.2 LORDOSIS (ACQUIRED)  
 737.20 LORDOSIS (ACQUIRED) (POSTURAL)  
 737.21 LORDOSIS, POSTLAMINECTOMY  
 737.22 OTHER POSTSURGICAL LORDOSIS  
 737.29 LORDOSIS (ACQUIRED) OTHER  
 737.3 SCOLIOSIS (AND KYPHOSCOLIOSIS), IDIOPATHIC  
 737.30 KYPHOSCOLIOSIS AND SCOLIOSIS  
 737.31 RESOLVING INFANTILE IDIOPATHIC SCOLIOSIS  
 737.32 PROGRESSIVE INFANTILE IDIOPATHIC SCOLIOSIS  
 737.34 THORACOGENIC SCOLIOSIS  
 737.39 KYPHOSCOLIOSIS AND SCOLIOSIS OTHER  
 737.4 CURVATURE OF SPINE ASSOCIATED WITH OTHER  
 CONDITIONS  
 737.40 CURVATURE OF SPINE, UNSPECIFIED  
 737.41 KYPHOSIS ASSOCIATED WITH OTHER CONDITIONS  
 737.42 LORDOSIS ASSOCIATED WITH OTHER CONDITIONS

- 737.43 SCOLIOSIS ASSOCIATED WITH OTHER CONDITIONS
- 737.8 OTHER CURVATURES OF SPINE ASSOCIATED WITH OTHER CONDITIONS
- 738 OTHER ACQUIRED NEUROMUSCULOSKELETAL DEFORMITY
- 738.2 ACQUIRED DEFORMITY OF NECK
- 738.3 ACQUIRED DEFORMITY OF CHEST AND RIB
- 738.4 ACQUIRED SPONDYLOLISTHESIS
- 738.5 OTHER ACQUIRED DEFORMITY OF BACK OR SPINE
- 738.6 ACQUIRED DEFORMITY OF PELVIS
- 738.9 ACQUIRED NEUROMUSCULOSKELETAL DEFORMITY OF UNSPECIFIED SITE
- 739 NONALLOPATHIC LESIONS, NOT ELSEWHERE CLASSIFIED
- 739.0 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
- 739.6 NONALLOPATHIC LESIONS OF LOWER EXTREMITIES, NOT ELSEWHERE CLASSIFIED
- 739.7 NONALLOPATHIC LESIONS OF UPPER EXTREMITIES, NOT ELSEWHERE CLASSIFIED
- 739.8 NONALLOPATHIC LESIONS OF RIB CAGE, NOT ELSEWHERE CLASSIFIED

**740-759.1.1 Congenital Anomalies**

- 754.2 CONGENITAL NEUROMUSCULOSKELETAL DEFORMITIES OF SPINE
- 755.69 OTHER CONGENITAL ANOMALIES OF LOWER LIMB, INCLUDING PELVIC GIRDLE
- 756.1 CONGENITAL ANOMALIES OF SPINE
- 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

- 780-799 Symptoms, Signs, and Ill-Defined Conditions**
- 780.4 DIZZINESS AND GIDDINESS
  - 780.7 MALAISE AND FATIGUE
  - 780.8 HYPERHIDROSIS
  - 780.9 OTHER GENERAL SYMPTOMS
  - 781 OTHER SYMPTOMS INVOLVING NERVOUS AND NEUROMUSCULOSKELETAL SYSTEMS
  - 781.0 ABNORMAL INVOLUNTARY MOVEMENTS
  - 781.9 OTHER SYMPTOMS INVOLVING NERVOUS AND NEUROMUSCULOSKELETAL SYSTEMS
  - 784 SYMPTOMS INVOLVING HEAD AND NECK
  - 784.0 HEADACHE
  - 784.1 THROAT PAIN
  - 786.5 CHEST PAIN
  - 786.50 UNSPECIFIED CHEST PAIN
  - 788.3 ENURESIS, NOCTURNAL
  - 789.0 COLIC, INFANTILE, ABDOMINAL, INTESTINAL, SPASMODIC
- 800-999 Injury**
- 839 DISLOCATION, NOT ELSEWHERE CLASSIFIED
  - 839.0 DISLOCATION, CERVICAL VERTEBRA
  - 839.00 DISLOCATION, CERVICAL VERTEBRA, CLOSED
  - 839.01 DISLOCATION FIRST CERVICAL VERTEBRA, CLOSED
  - 839.02 DISLOCATION SECOND CERVICAL VERTEBRA, CLOSED
  - 839.03 DISLOCATION THIRD CERVICAL VERTEBRA, CLOSED
  - 839.04 DISLOCATION FOURTH CERVICAL VERTEBRA, CLOSED
  - 839.05 DISLOCATION FIFTH CERVICAL VERTEBRA, CLOSED
  - 839.06 DISLOCATION SIXTH CERVICAL VERTEBRA, CLOSED
  - 839.07 DISLOCATION SEVENTH CERVICAL VERTEBRA, CLOSED
  - 839.08 DISLOCATION MULTIPLE CERVICAL VERTEBRAE, CLOSED
  - 839.2 CLOSED DISLOCATION, THORACIC AND LUMBAR VERTEBRA
  - 839.20 CLOSED DISLOCATION, LUMBAR VERTEBRA
  - 839.21 CLOSED DISLOCATION, THORACIC VERTEBRA
  - 840 SPRAINS AND STRAINS OF SHOULDER AND UPPER ARM
  - 840.0 ACROMIOCLAVICULAR (JOINT) (LIGAMENT) SPRAIN
  - 840.1 CORACOCLAVICULAR (LIGAMENT) SPRAIN
  - 840.2 CORACOHUMERAL (LIGAMENT) SPRAIN
  - 840.3 INFRASPINATUS (MUSCLE) (TENDON) SPRAIN
  - 840.4 ROTATOR CUFF (CAPSULE) SPRAIN
  - 840.5 SUBSCAPULARIS (MUSCLE) SPRAIN
  - 840.6 SUPRASPINATUS (MUSCLE) (TENDON) SPRAIN
  - 840.8 SPRAIN OF OTHER SPECIFIED SITES OF SHOULDER AND UPPER ARM
  - 840.9 SPRAIN OF UNSPECIFIED SITE OF SHOULDER AND UPPER ARM

841           SPRAINS AND STRAINS OF ELBOW AND FOREARM  
 841.0        RADIAL COLLATERAL LIGAMENT SPRAIN  
 841.1        ULNAR COLLATERAL LIGAMENT SPRAIN  
 841.2        RADIOHUMERAL  
 841.3        ULNOHUMERAL (JOINT) SPRAIN  
 841.8        SPRAIN OF OTHER SPECIFIED SITES OF ELBOW AND FOREARM  
 841.9        SPRAIN OF UNSPECIFIED SITE OF ELBOW AND FOREARM  
 842           SPRAINS AND STRAINS OF WRIST AND HAND  
 842.0        WRIST SPRAIN  
 842.00       SPRAIN OF UNSPECIFIED SITE OF WRIST  
 842.01       SPRAIN OF CARPAL (JOINT) OF WRIST  
 842.02       SPRAIN OF RADIOCARPAL (JOINT) (LIGAMENT) OF WRIST  
 842.09       OTHER WRIST SPRAIN  
 842.1        HAND SPRAIN  
 842.10       SPRAIN OF UNSPECIFIED SITE OF HAND  
 842.11       SPRAIN OF CARPOMETACARPAL (JOINT) OF HAND  
 842.12       SPRAIN OF METACARPOPHALANGEAL (JOINT) OF HAND  
 842.13       SPRAIN OF INTERPHALANGEAL (JOINT) OF HAND  
 842.19       OTHER HAND SPRAIN  
 843           SPRAINS AND STRAINS OF HIP AND THIGH  
 843.0        ILIOFEMORAL (LIGAMENT) SPRAIN  
 843.8        SPRAIN OF OTHER SPECIFIED SITES OF HIP AND THIGH  
 843.9        SPRAIN OF UNSPECIFIED SITE OF HIP AND THIGH  
 844           SPRAINS AND STRAINS OF KNEE AND LEG  
 844.0        SPRAIN OF LATERAL COLLATERAL LIGAMENT OF KNEE  
 844.1        SPRAIN OF MEDIAL COLLATERAL LIGAMENT OF KNEE  
 844.2        SPRAIN OF CRUCIATE LIGAMENT OF KNEE  
 844.3        SPRAIN OF TIBIOFIBULAR (JOINT) (LIGAMENT) SUPERIOR, OF  
               KNEE  
 844.8        SPRAIN OF OTHER SPECIFIED SITES OF KNEE AND LEG  
 844.9        SPRAIN OF UNSPECIFIED SITE OF KNEE AND LEG  
 845           SPRAINS AND STRAINS OF ANKLE AND FOOT  
 845.0        ANKLE SPRAIN  
 845.00       UNSPECIFIED SITE OF ANKLE SPRAIN  
 845.01       DELTOID (LIGAMENT), ANKLE SPRAIN  
 845.02       CALCANEOFIBULAR (LIGAMENT) ANKLE SPRAIN  
 845.03       TIBIOFIBULAR (LIGAMENT) SPRAIN, DISTAL  
 845.09       OTHER ANKLE SPRAIN  
 845.1        FOOT SPRAIN  
 845.10       UNSPECIFIED SITE OF FOOT SPRAIN  
 845.11       TARSOMETATARSAL (JOINT) (LIGAMENT) SPRAIN  
 845.12       METATARSOPHALANGEAL (JOINT) SPRAIN  
 845.13       INTERPHALANGEAL (JOINT), TOE SPRAIN  
 845.19       OTHER FOOT SPRAIN  
 846           SPRAINS AND STRAINS OF SACROILIAC REGION  
 846.0        LUMBOSACRAL (JOINT) (LIGAMENT) SPRAIN

846.1 SACROILIAC (LIGAMENT) SPRAIN  
 846.2 SACROSPINATUS (LIGAMENT) SPRAIN  
 846.3 SACROTUBEROUS  
 846.8 OTHER SPECIFIED SITES OF SACROILIAC REGION SPRAIN  
 846.9 UNSPECIFIED SITE OF SACROILIAC REGION SPRAIN  
 847 SPRAINS AND STRAINS OF OTHER AND UNSPECIFIED PARTS  
 OF BACK  
 847.0 NECK SPRAIN  
 847.1 THORACIC SPRAIN  
 847.2 LUMBAR SPRAIN  
 847.3 SPRAIN OF SACRUM  
 847.4 SPRAIN OF COCCYX  
 847.9 SPRAIN OF UNSPECIFIED SITE OF BACK  
 848 OTHER AND ILL-DEFINED SPRAINS AND STRAINS  
 848.1 JAW SPRAIN  
 848.2 THYROID REGION SPRAIN  
 848.3 SPRAIN OF RIBS  
 848.4 STERNUM SPRAIN  
 848.42 CHONDROSTERNAL (JOINT) SPRAIN  
 848.5 PELVIC SPRAIN  
 848.8 OTHER SPECIFIED SITES OF SPRAINS AND STRAINS  
 848.9 UNSPECIFIED SITE OF SPRAIN AND STRAIN  
 850.9 CONCUSSION, UNSPECIFIED  
 905.7 LATE EFFECT OF SPRAIN AND STRAIN WITHOUT MENTION OF  
 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 INJURY TO CERVICAL SYMPATHETIC NERVE, EXCLUDING  
 SHOULDER AND PELVIC GIRDLES  
 956 INJURY TO SCIATIC NERVE  
 959.2 OTHER AND UNSPECIFIED INJURY TO SHOULDER AND UPPER  
 ARM  
 959.6 OTHER AND UNSPECIFIED INJURY TO HIP AND THIGH  
 959.7 OTHER AND UNSPECIFIED INJURY TO KNEE, LEG, ANKLE, AND  
 FOOT