

# Expenditures and Health Status Among Adults With Back and Neck Problems

Journal of the American Medical Association

February 13, 2008, Vol. 299, No. 6, pp. 656-664

Brook I. Martin, MPH, Richard A. Deyo, MD, MPH, Sohail K. Mirza, MD, MPH, Judith A. Turner, PhD, Bryan A. Comstock, MS, William Hollingworth, PhD Sean D. Sullivan, PhD

## FROM ABSTRACT

### Context

Back and neck problems are among the symptoms most commonly encountered in clinical practice. However, few studies have examined national trends in expenditures for back and neck problems or related these trends to health status measures.

### Objectives

To estimate inpatient, outpatient, emergency department, and pharmacy expenditures related to back and neck problems in the United States from 1997 through 2005 and to examine associated trends in health status.

### Main Outcome Measures

Spine-related expenditures for health services (inflation adjusted).

### Results

National estimates were based on annual samples of survey respondents with and without self-reported spine problems from 1997 through 2005.

In 1997, the mean age- and sex-adjusted medical costs for respondents with spine problems was \$4,695 compared with \$2,731 among those without spine problems (inflation-adjusted to 2005 dollars). **[Difference of \$1,964]**

In 2005, the mean age- and sex- adjusted medical expenditure among respondents with spine problems was \$6,096, compared with \$3,516 among those without spine problems. **[Difference of \$2,580]**

Total estimated expenditures among respondents with spine problems increased 65% (adjusted for inflation) from 1997 to 2005, more rapidly than overall health expenditures.

The estimated proportion of persons with backs or neck problems who self-reported physical functioning limitations increased from 20.7% to 24.7% from 1997 to 2005.

Age- and sex-adjusted self-reported measures of mental health, physical functioning, work or school limitations, and social limitations among adults with spine problems were worse in 2005 than in 1997.

### Conclusions

In this survey population, self-reported back and neck problems accounted for a large proportion of health care expenditures.

These spine-related expenditures have increased substantially from 1997 to 2005, without evidence of corresponding improvement in self-assessed health status.

### THESE AUTHORS ALSO NOTE

“Back and neck problems are among the symptoms most commonly encountered in clinical practice.”

Among, US adults, “26% reported low back pain and 14% reported neck pain in the previous 3 months.”

“Rates of imaging, injections, opiate use, and surgery for spine problems have increased substantially over the past decade.”

An increase in health expenditures without improvement in health status raises questions of medical waste.

These authors examined trends in health care expenditures and health among individuals with back and neck problems from 1997 to 2005 by asking and answering the following:

- 1) What are the overall expenditures for back and neck problems?
- 2) Are the overall expenditures for back and neck problems increasing?
- 3) What fraction of all medical expenditures is accounted for by back and neck problems?
- 4) Which components of medical expenditures (inpatient, outpatient, emergency department, or prescription medications) contribute most to any changes observed?
- 5) Is the health status of adults with back and neck problems improving?

In this study, the authors were unable to distinguish among cervical, thoracic, and lumbar spine problems because ICD-9-CM codes in the public database used did not make these distinctions. For technical reasons, this study did not include patients with “stiffness” or “arthralgia”.

To adjust for inflation, expenditures from 1997 through 2004 were inflated to match the 2005 equivalents using the Consumer Price Index.

## RESULTS

In 2005:

14.3% of the adult population had spine problems.  
 55% of these were back pain  
 15% were intervertebral disk disorders  
 9.3% were sprains or strains of the back

In 1997, the mean medical costs for respondents with spine problems were \$4,695 (inflation adjusted to 2005 dollars).

In 2005, the mean medical costs for respondents with spine problems were \$6,096.

**[This means that the medical costs for patients with spine problems increased \$1,402]**

In 1997, the mean medical costs for respondents without spine problems were \$2,731 (inflation adjusted to 2005 dollars).

In 2005, the mean medical costs for respondents without spine problems were \$3,516.

**[This means that the medical costs for patients without spine problems increased \$785]**

In 2005, the incremental increase in expenditures attributed to spine problems was \$2,580 per person with spine problems. [ $\$6,096 - \$3,516 = \$2,850$ ]

From 1997 to 2005, there was a 65% inflation-adjusted increase in the total national health costs expenditure of adults with spine problems.

“From 1997 to 2005, the mean annual chiropractor expenses among respondents with spine problems increased from \$94 to \$157 and among those without spine problems from \$6 to \$11.” **[This is very misleading because they averaged in the costs of patients who used no chiropractic services, which is why these numbers are so low]**

“These means include many respondents who used no chiropractic services; they do not represent mean costs by users of the services. Based on the prevalence of spine problems, these trends represent an estimated 111% increase in total national spine-related expenditures for chiropractor visits.”

The national expenditures for spine-related physical therapy increased by an estimated 78% from 1997 to 2005.

There was a 12% net increase in workers’ compensation expenditures for spine problems from 1997 to 2005.

Using the direct method to calculate expenditures:

- 1) The total inflation-adjusted expenditure for spine problems increased 60% from 1997 to 2005.
- 2) "Expenditures for prescription medications directly attributed to spine problems increased 188%, again more than any other service category."
- 3) Inflation adjusted, spine-related expenditure for pharmacy events increased from \$25 in 1997 to \$58 in 2005.
- 4) "When combined with the increase in the number of pharmacy events among patients with spine problems, these differences account for an estimated 423% increase in the expenditure for spine-related narcotic analgesics from 1997 to 2004."

#### COMMENT

"Despite rapidly increasing medical expenditures from 1997 to 2005, there was no improvement over this period in self-assessed health status, functional disability, work limitations, or social functioning among respondents with spine problems."

"Inflation-adjusted health care expenditures related to spine problems increased 65% between 1997 and 2005."

"The greatest relative increase among expenditure categories was observed for medications."

"Across all years, the average expenditure for respondents reporting spine problems was 73% greater than that of those without spine problems."

The total estimated cost for treating spine problems in 2005 was \$85.9 billion.

"Several factors may account for increasing medical expenditures associated with spine problems. The percentage of total expenditures related to prescription medication increased during the study period more rapidly than expenditures for other major services."

Importantly, this study data did not include the costs from over-the-counter drugs.

## KEY POINTS FROM DAN MURPHY

- 1) Back and neck problems are among the symptoms most commonly encountered in clinical practice.
- 2) In this survey population, self-reported back and neck problems accounted for a large proportion of health care expenditures.
- 3) Spine-related healthcare expenditures have increased substantially from 1997 to 2005, without evidence of corresponding improvement in self-assessed health status.
- 4) Among, US adults, "26% reported low back pain and 14% reported neck pain in the previous 3 months."
- 5) "Rates of imaging, injections, opiate use, and surgery for spine problems have increased substantially over the past decade."
- 6) This study did not distinguish among cervical, thoracic, and lumbar spine problems. This study did not include patients with "stiffness" or "arthralgia".
- 7) In 2005:
  - A)) 14.3% of the adult population had spine problems.
  - B)) 55% of these were back pain
  - C)) 15% were intervertebral disk disorders
  - D)) 9.3% were sprains or strains of the back
- 8) In 1997, the mean medical costs for respondents with spine problems were \$4,695 (inflation adjusted to 2005 dollars).  
 In 2005, the mean medical costs for respondents with spine problems were \$6,096.  
**[This means that the medical costs for patients with spine problems increased \$1,402]**
- 9) In 1997, the mean medical costs for respondents without spine problems were \$2,731(inflation adjusted to 2005 dollars).  
 In 2005, the mean medical costs for respondents without spine problems was \$3516.  
**[This means that the medical costs for patients without spine problems increased \$785]**
- 10) In 2005, the incremental increase in expenditures attributed to spine problems was \$2580 per person with spine problems. [ $\$6,096 - \$3,516 = \$2,850$ ]
- 11) From 1997 to 2005, there was a 65% inflation-adjusted increase in the total national health costs expenditure of adults with spine problems.

12) Using the direct method to calculate expenditures:

A) The total inflation-adjusted expenditure for spine problems increased 60% from 1997 to 2005.

B) "Expenditures for prescription medications directly attributed to spine problems increased 188%, again more than any other service category."

C) "When combined with the increase in the number of pharmacy events among patients with spine problems, these differences account for an estimated 423% increase in the expenditure for spine-related narcotic analgesics from 1997 to 2004."

13) "Despite rapidly increasing medical expenditures from 1997 to 2005, there was no improvement over this period in self-assessed health status, functional disability, work limitations, or social functioning among respondents with spine problems."

14) "Inflation-adjusted health care expenditures related to spine problems increased 65% between 1997 and 2005."

15) "The greatest relative increase among expenditure categories was observed for medications."

16) "Across all years, the average expenditure for respondents reporting spine problems was 73% greater than that of those without spine problems."

17) The total estimated cost for treating spine problems in 2005 was \$85.9 billion.

18) "Several factors may account for increasing medical expenditures associated with spine problems. The percentage of total expenditures related to prescription medication increased during the study period more rapidly than expenditures for other major services."

19) Importantly, this study data did not include the costs from over-the-counter drugs.

<b>All Inflation Adjusted</b>	1997	2005
Total Medical Costs Without Back Pain	\$2,731	\$3,516
Total Medical Costs With Back Pain	\$4,695	\$6,096

#### COMMENTS FROM DAN MURPHY

This study shows that the cost of treating back problems is rising faster than other medical costs, and yet patients are not fairing any better. This study clearly indicates that increasing the amounts of drugs to treat back problems is not the answer, because it is clearly not working.