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RESEARCH ARTICLE

Utilization

Utilization and Expenditures on Chiropractic Care in the United States from 1997 to 2006

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Objective. To investigate national utilization and expenditures on chiropractic care between 1997 and 2006.

Data Source. The nationally representative Medical Expenditure Panel Survey (MEPS).

Study Design. We performed descriptive analyses and generated national estimates from data obtained from U.S. adult (≥ 18 years) MEPS respondents who reported having visited a chiropractor (annual sample size between 789 and 1,082). For each year, we examined the estimated total national expenditure, the total number of U.S. adults who received chiropractic care, the total number of ambulatory visits to U.S. chiropractors, and the inflation-adjusted charges and expenditures per U.S. adult chiropractic patient.

Principal Findings. The total number of U.S. adults who visited a chiropractor increased 57 percent from 7.7 million in 2000 to 12.1 million in 2003. From 1997 to 2006, the inflation-adjusted national expenditures on chiropractic care increased 56 percent from U.S.\$3.8 billion to U.S.\$5.9 billion. Inflation-adjusted total mean expenditures per patient and expenditures per office visit remained unchanged.

Conclusion. The large increase in U.S. adult expenditures on chiropractic care between 1997 and 2006 was due to a 57 percent increase in the total number of U.S. adult chiropractic patients that occurred from 2000 to 2003. From 2003 to 2006, the total number of U.S. adult chiropractic patients has remained stable.

Key Words. Chiropractic/trends, office visits, health resources

[Corrections added after online publication 12/4/09: on page 1, the percentages under both “Principal Findings” and “Conclusion” were wrong and have been corrected; on page 5, the percentage under “U.S. Adults Who Consulted a U.S. Chiropractor” was wrong and has been corrected; on page 6, the percentage in the first paragraph was wrong and has been corrected from “42 percent” to “70 percent”; on page 7, the net increase percentage under “U.S. Charges and Expenditures on Chiropractic Care” was wrong and has been corrected; on page 9, two percentages were listed incorrectly (36 percent in line 5, 37 percent in line 8) and have been updated to 56 percent and 57 percent, respectively; on page 12, the percentage under “Conclusion” was wrong and has been corrected. The authors apologize for these errors.]

Over the last two decades, public utilization of complementary and alternative medicine (CAM) has grown substantially in the United States (Kessler et al. 2001; Barnes, Bloom, and Nahin 2008). The chiropractic profession was the first CAM profession to become established in the United States, and it remains the largest constituent of the CAM workforce with over 53,000 practicing chiropractors (U.S. Bureau of Labor Statistics, 2007) having over 85,000 U.S. licenses (Federation of Chiropractic Licensing Boards, 2007) (some chiropractors have multiple licenses). Chiropractors are now regulated in all 50 states, reimbursed by government and private health care insurance, and integrated into the military health care system (Meeker and Haldeman 2002).

Cross-sectional studies in the early 1990s showed substantive growth in utilization of CAM services by the American public (Eisenberg et al. 1993, 1998). Approximately 7.5 percent of U.S. adults are estimated to visit a chiropractor each year (Barnes et al. 2004), and 3.3 percent of the national office-based health care expenditures are devoted to chiropractic services (Davis et al. 2009). Although interest and utilization of CAM therapies appear to be growing, our previous work showed a decrease in new graduates from chiropractic colleges of 28 percent between academic years 2001 and 2003 (from approximately 3,500 to 2,500 graduates per annum) (Davis et al. 2009). However, from 1996 to 2005, national inflation-adjusted office-based expenditures on chiropractic care more than doubled, reaching a high of U.S.\$7.3 billion in 2005. Whether U.S. chiropractors have attracted more patients to their practices or changed their clinical practices as an explanation for this increase in expenditures has not been explored.

Therefore, we sought to more fully investigate utilization and national expenditures on chiropractic care from 1997 to 2006. From nationally representative datasets on health services utilization, we extracted data on chiropractic patient demographics, national expenditures and charges, and estimates of the total number of U.S. adults who saw a chiropractor over the 10-year time period.

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METHODS

To obtain data on utilization and expenditures on U.S. chiropractic care, we analyzed data from the Medical Expenditure Panel Survey (MEPS) from 1997 to 2006 (The Medical Expenditure Panel Survey, Agency for Health Care Policy and Research 2009). Annually conducted by the Agency for Health Care Policy and Research, the MEPS is a nationally representative survey of the noninstitutionalized U.S. population. Information is gathered on health care utilization, expenditures, health status, and visits to health care providers. The MEPS utilizes an overlapping panel design consisting of a household component, medical provider component, and insurance provider component. Each respondent is interviewed five times over a $2\frac{1}{2}$ -year time period, and a sample of medical providers and health care insurance providers are contacted to acquire additional information. For each year, personal and family-level data obtained from the household, medical provider, and insurance provider are aggregated and converted to annual estimates by MEPS statisticians. National estimates are calculated by the application of sample weights to reflect the participant's probability of selection and to account for sampling methodology.

Sample

We analyzed data from all respondents to the MEPS survey from 1997 to 2006. The MEPS utilizes a sample frame of the previous year's National Health Interview Survey to ensure a national representative sample frame. Sample sizes for the MEPS from 1997 to 2006 range from a low of 22,953 individuals in 1998 to a high of 32,737 in 2003; response rates ranged from 58.3 percent in 2006 to 66.8 percent in 1997. Respondents to the MEPS survey were asked if they had seen a chiropractor in the past 6 months and, if so, how many visits were made to the chiropractor and how much was spent on chiropractic care. If the individual reported having seen a chiropractor, the MEPS would then proceed to contact the individuals' chiropractor and health care insurance provider to verify information regarding utilization (i.e., visit dates and details of office-based or outpatient visits), charges, and expenditures. We restricted our analyses to U.S. adults (≥ 18 years) because the vast majority of chiropractic patients in the United States are adults (Cherkin et al. 2002; National Board of Chiropractic Examiners 2005). The number of MEPS adult respondents who reported having seen a chiropractor ranged from 789 in 1997 to 1,082 in 2006.

Demographic Data

We examined demographic data for individuals who had reported having visited a U.S. chiropractor in 1997 and 2006, including age, gender, race, health care insurance type, income, and education. We aggregated respondent self-reported race from the six categories reported by MEPS into “white,” “black,” and “other/multiple.” Health care insurance variables were combined for each corresponding year into “any private,” “public,” and “uninsured” categories. Census regions consisted of “northeast,” “midwest,” “south,” and “west.”

The U.S. Census Bureau differentiates U.S. regions by population density. Areas that are considered “metropolitan and micropolitan statistical areas” (MSAs) are defined by a core population of 50,000 or more (metropolitan) or a micropolitan population of 10,000 or more (U.S. Census Bureau 2009). We report the proportion of chiropractic patients residing in MSAs.

Expenditures, Charges, and Visits to U.S. Chiropractors

We used the MEPS consolidated data files from years 1997–2006 to acquire information on the number of visits, expenditures, and charges annually and per visit to U.S. chiropractors. Charges were defined as the total amount billed for a health care service, while expenditures were the amounts actually paid by either the patient or their health care insurer. The MEPS distinguishes ambulatory visits to medical providers as either office-based or outpatient. Outpatient is defined as an ambulatory visit to a hospital and office-based are visits to health care provider offices. To estimate the total number of ambulatory visits to chiropractors, charges, and expenditures, we combined office-based and outpatient statistics. In addition, we extracted charges and expenditures on U.S. medical physician office-based encounters per patient and per visit over the same time period for comparison purposes.

Analyses

We conducted descriptive analyses of the datasets using complex survey analysis methods. All analyses were conducted using *STATA* version 10.0 statistical software (College Station, TX). To create real estimates of professional health care charges and expenditures, we converted all data to 2006 dollars using the Consumer Price Index for professional medical services provided by the U.S. Bureau of Labor Statistics (2008). We used the annual average Consumer Price Index for all urban workers to convert the 1997 income of chiropractic patients to 2006 dollars.

In order to determine the relative amount spent on chiropractic care among individuals who use the service, we calculated the fraction of total office-based expenditures on chiropractic care. The fraction of total office-based expenditures on chiropractic care excluded the small portion of chiropractic services rendered in outpatient hospital settings.

We also calculated the fraction of total health care expenditures (inpatient, outpatient, office-based, and medical prescription expenditures) on ambulatory chiropractic services (both office-based and outpatient expenditures combined) among those respondents who reported using chiropractic care.

RESULTS

U.S. Adults Who Consulted a U.S. Chiropractor

The national projected total number of individuals who visited a chiropractor increased 68 percent from 1997 to 2006; from 7.5 million (95 percent CI: 6.6–8.3) in 1997 to 12.6 million (95 percent CI: 11.5–13.8) in 2006 (Table 1). The majority of growth occurred between 2000 and 2003 and was followed by relative stability in the chiropractic care-seeking population between 2003 and 2006 (Figure 1).

The total number of ambulatory visits to U.S. chiropractors grew by 70 percent from 64 million (95 percent CI: 53–74) in 1997 to 109 million (95 percent CI: 93–125) in 2006 (Figure 1).

The Characteristics of U.S. Adults Who Received Chiropractic Care

The characteristics of U.S. adults (≥ 18 years) who visited a chiropractor in 1997 and 2006 (Table 1) were largely similar. For both years, approximately 60 percent of chiropractic patients were female, the mean age was 47–48 years of age, and over 90 percent were white. Eighty-two to 84 percent of chiropractic patients had private health care insurance, 8 percent public, and 7–9 percent were uninsured. U.S. adults who visited a chiropractor in 2006 were more educated (43 percent had attended college or higher compared with 31 percent in 1997).

In both years (1997 and 2006) 19 percent of the total MEPS-projected chiropractic population was from the Northeast, 23 percent from the Midwest, 36 percent from the South, and 23 percent from the West. Chiropractic patients were not distributed equally across geographic regions; they were relatively overrepresented in the Midwest (36 percent resided in the Midwest compared to 23 percent of the entire adult MEPS population) and relatively

Table 1: Characteristics of U.S. Adults (≥ 18 Years) Who Visited a Chiropractor in 1997 and 2006

<i>Characteristic</i>	<i>Mean, Total, or % (95% CI)</i>		<i>p-Value for Difference between 1997 and 2006*</i>
	<i>1997</i>	<i>2006</i>	
No. of chiropractic patients sampled (respondents)	789	1,082	
Estimated no. of U.S. adult chiropractic patients (millions)	7.5 (6.6–8.3)	12.6 (11.5–13.8)	
Age (mean)	46.9	48.0	0.25
Women (%)	56.8	59.5	0.26
Race (%)			
White	94.5	92.3	0.13
Black	3.6	3.7	
Other/multiple	1.9	4.0	
Insurance (%)			
Any private	82.0	83.9	0.29
Public	8.4	9.0	
Uninsured	9.6	7.2	
Income (mean 2006 dollar)	37,555	39,536	0.28
Education (%)			
High school or less	69.4	57.1	<0.001
College or more	30.6	42.9	
U.S. region (%)			
Northeast	16.3	17.4	0.77
Midwest	36.0	35.6	
South	20.0	22.3	
West	27.8	24.6	
MSA (%)	71.8	75.0	0.41

**t*-test used in mean comparisons and χ^2 statistic used in comparison of proportions.
 CI, confidence interval; MSA, metropolitan or micropolitan statistical area.

underrepresented in the South (20–23 percent resided in the South compared to 36 percent of the entire adult MEPS population). Chiropractic patients were underrepresented in metropolitan/micropolitan areas (72 percent resided in MSAs compared with 82 percent of the entire adult MEPS population).

U.S. Charges and Expenditures on Chiropractic Care

From 1997 to 2006, the estimated total inflation-adjusted expenditures on U.S. adult (≥ 18 years) chiropractic care increased from U.S.\$3.8 billion (95 percent CI: 2.9–4.7) to U.S.\$5.91 billion (95 percent CI: 5.0–6.8); a net increase of

Figure 1: Total Number of U.S. Adults Who Visited a Chiropractor, Total Number of Ambulatory Visits to U.S. Chiropractors, and Total Inflation-Adjusted (2006 Dollar) National Expenditures on Chiropractic Care among U.S. Adults (≥ 18 Years), 1997–2006

55 percent (Figure 1). A high of U.S.\$7.4 billion (95 percent CI: 6.2–8.7) was spent in 2005 and a decline of 21 percent occurred from 2005 to 2006.

Among chiropractic patients, the mean per patient total annual inflation-adjusted expenditures on chiropractic care and mean inflation-adjusted expenditure per chiropractic office visit remained relatively unchanged: mean total annual expenditure per chiropractic patient was U.S.\$508 in 1997 compared with U.S.\$467 in 2006 and mean expenditure per chiropractic office visit was U.S.\$62 in 1997 compared with U.S.\$57 in 2006 (Table 2). The annual mean number of visits among chiropractic patients was stable: 8.5 visits per year to U.S. chiropractors from 1997 to 2006.

Among MEPS respondents who reported having seen a medical doctor, the annual inflation-adjusted mean expenditure on office-based medical physician services increased from U.S.\$683 in 1997 to U.S.\$1,018 in 2006, and mean expenditure per visit increased from U.S.\$132 to U.S.\$177.

Expenditures more closely mirrored charges for chiropractic visits (expenditure:charge ratio of 80 percent) than for office-based physician services (ratio 48–64 percent).

Table 2: Inflation-Adjusted (2006 dollar) Charges and Expenditures on Chiropractic Care among Chiropractic Adult (≥ 18 Years) Patients and Office-Based Physician Service Charges and Expenditures among Adults Who Visited a Medical Physician in 1997 and 2006

	Mean or Total (95% CI)				p-Value for Difference between Respondents
	1997		2006		
	Chiropractic Care [#]	Medical Physician Care [†]	Chiropractic Care [#]	Medical Physician Care [†]	Chiropractic versus Medical Physician Care, 1997 versus 2006
Total U.S. Charges (billions)	4.76 (3.45–5.7)	141 (131–151)	7.32 (6.19–8.45)	316 (289–343)	Chiropractic versus Medical Physician Care, 2006 [‡]
Expenditures (billions)	3.81 (2.93–4.69)	90.6 (83.9–97.3)	5.91 (5.02–6.80)	154 (141–167)	
Annual per patient					
Charges (mean)	636.1 (476.4–795.9)	1,064.7 (1,001.3–1,128.1)	578.5 (509.8–647.3)	2,090.6 (1,979.1–2,202.1)	0.10
Expenditures (mean)	508.7 (406.5–611.0)	683.3 (642.6–724.1)	467.4 (417.8–517.0)	1,018.4 (971.0–1,065.8)	0.01
Per office visit					
Charges (mean)	72.8 (64.5–81.0)	196.9 (188.4–205.3)	68.0 (61.7–74.3)	337.3 (321.2–353.5)	0.08
Expenditures (mean)	62.0 (56.0–68.0)	132.2 (125.9–138.4)	57.3 (52.2–62.4)	176.7 (168.6–184.7)	<0.01

[#]Expenditures for all ambulatory services (outpatient and office-based).

[†]Expenditures for only office-based services.

[‡]t-test used in mean comparisons.

CI, confidence interval.

Figure 2: Expenditures on Chiropractic Care as a Fraction of Total Office-Based Health Care and as a Fraction of Total Health Care Expenditures among Adult (≥ 18 Years) Chiropractic Patients, 1997–2006

Chiropractic Expenditures as a Fraction of Total Office-Based and Total Health Care Expenditures

From 1997 to 2006 among chiropractic patients the fraction of total office-based expenditures spent on chiropractic care fell from a high of 33 percent in 1998 to 23 percent in 2006 (Figure 2). As a fraction of total health care expenditures among chiropractic patients, the percent decreased from 11 percent in 1997 to 8 percent in 2006.

DISCUSSION

Main Findings

Although the chiropractic workforce has remained stable from 1996 to 2005 and a decline in new chiropractic school graduates is evident, national ex-

penditures on chiropractic care have grown (Davis et al. 2009). From 1997 to 2006, the inflation-adjusted national expenditures for chiropractic care increased 56 percent from U.S.\$3.8 billion (95 percent CI: 2.9–4.7) to U.S.\$5.91 billion (95 percent CI: 5.0–6.8). Between 2000 and 2003, the estimated total number of U.S. adults (≥ 18 years) who saw a chiropractor also increased 57 percent from 7.7 million (95 percent CI: 6.7–8.6) in 2000 to 12.1 million (95 percent CI: 11.1–13.1) in 2003 and has remained stable from 2003 to 2006.

Among chiropractic patients, inflation-adjusted total mean expenditure per U.S. adult (≥ 18 years) on chiropractic care and inflation-adjusted mean expenditure per chiropractic office visit have remained relatively unchanged from 1997 to 2006; at the same time, both expenditures per patient and per office visit to medical physicians increased by over 30 percent. U.S. chiropractors continue to use spinal manipulative therapy as their main treatment modality, which is a nontechnologically based therapy that is potentially less influenced by increasing costs of health care delivery (Meeker and Haldeman 2002). This may explain the stability of national charges and expenditures per U.S. adult chiropractic patient.

Our data suggest that the large increase in U.S. expenditures on chiropractic care in the United States was due to an increase in the total number of U.S. adults (≥ 18 years) utilizing chiropractic care. In 2006, 12.6 million (95 percent CI: 11.6–13.7) U.S. adults out of a total of 226 million adults in the United States (5.6 percent; U.S. Census Bureau 2007) visited a chiropractor. This percentage is lower than previous reports that estimated approximately 7.5 percent (Barnes et al. 2004).

Study Limitations

The interpretation of the findings is subject to several limitations. Our study only investigated treatment patterns, expenditures, and utilization among noninstitutionalized U.S. adult (≥ 18 years) citizens. Trends may vary among U.S. children (0 to <18) and institutionalized U.S. citizens such as those in individuals in nursing homes or in the military. Second, our findings were restricted to the time period between 1997 and 2006, and since this time changes in treatment patterns and national expenditure may have taken place. In addition, the MEPS interviews individuals regarding health care utilization and expenditures and therefore self-reporting errors may exist within the MEPS data; however, the MEPS does attempt to correct self-reported errors

by verifying response data with the respondent's health care providers and health care insurance providers.

Though from 1996 to 2006 the MEPS has collected data on the utilization and expenditures spent on chiropractic care, variation in the way these data were collected from respondents may have impacted our results. Starting in 2002, the MEPS made a more concerted effort to delineate CAM providers by adding a probe to ensure that other CAM providers (acupuncturists and massage therapists) were reported the same as any other medical provider; before 2002 the only CAM profession recognized was chiropractic. It is possible that the expansion to include new categories of CAM providers may have affected the data on chiropractic care.

Implications

It is apparent that the chiropractic profession experienced significant growth in national utilization and expenditures between 1997 and 2006—and in particular between 2000 and 2003. The growth in the total number of U.S. adult chiropractic patients that occurred between 2000 and 2003 may imply that the chiropractic care became more rapidly adopted in the United States during this period of time. At the turn of the 21st century CAM had gained significant attention in the United States (Eisenberg et al. 1998; Barnes et al. 2004), which may have increased utilization rates. Our data cannot explain the ramifications of higher U.S. adult utilization of chiropractic care, but the increase in the number of individuals using these services may either be contributing to higher health care expenditures overall or, by potentially replacing higher cost services, reducing national health care expenditures.

Interestingly, another study that used the MEPS to investigate the number of U.S. adults with spinal conditions found an increase of 21 percent from 1997 to 2005 (Martin et al. 2008). Whether the chiropractic profession has increased its market share among U.S. adults with spinal conditions or the increase in utilization is a result of increased prevalence of spinal conditions cannot be differentiated at this time.

The chiropractic profession competes for market share within both the CAM and mainstream conservative musculoskeletal markets (such as physical therapy). The increase in chiropractic patients could imply that the profession's market share in the United States has expanded. Nevertheless, lower barriers to entry among other CAM professionals such as massage therapists and acupuncturists who also treat low back and neck pain may result in a greater supply of CAM professionals and increase competition for patients within the

CAM market. Additionally, physical therapists who are also trained in spinal manipulation (the main treatment modality among U.S. chiropractors) may exert increased competition in the future (Flynn, Wainner, and Fritz 2006).

Our work was unable to answer a fundamental question: Is growth in chiropractic care good for the nation's health or bad for it? If chiropractic delivers the same outcomes at a lower cost per case, then perhaps further growth is warranted; on the other hand, if chiropractic care does the opposite, it is possible that this growth is having a net negative impact on population health. Future work will investigate this question and will further investigate longitudinal trends in the market share of national health care expenditures on chiropractic care as well as other CAM services over this time period and in future years. In addition, we will attempt to determine whether U.S. chiropractors' market share of patients with spinal conditions has changed and how increases in the utilization of chiropractic care may have affected national health care expenditures and outcomes.

CONCLUSION

The chiropractic profession experienced significant growth in national utilization and expenditures over the decade from 1997 to 2006. The increase in national expenditures on chiropractic care was due to a 57 percent increase in the total number of chiropractic patients that occurred from 2000 to 2003. However, the total number of U.S. adults who saw chiropractors from 2003 to 2006 remained relatively stable.

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REFERENCES

- Barnes, P. M., B. Bloom, and R. L. Nahin. 2008. "Complementary and Alternative Medicine Use among Adults and Children: United States, 2007." *National Health Statistics Reports* (12): 1–23.
- Barnes, P. M., E. Powell-Griner, K. McFann, and R. L. Nahin. 2004. "Complementary and Alternative Medicine Use among Adults: United States, 2002." *Advance Data* (343): 1–19.
- Cherkin, D. C., R. A. Deyo, K. J. Sherman, L. G. Hart, J. H. Street, A. Hrbek, R. B. Davis, E. Cramer, B. Milliman, J. Booker, R. Mootz, J. Barassi, J. R. Kahn, T. J. Kaptchuk, and D. M. Eisenberg. 2002. "Characteristics of Visits to Licensed Acupuncturists, Chiropractors, Massage Therapists, and Naturopathic Physicians." *Journal of the American Board of Family Practice* 15 (6): 463–72.
- Davis, M. A., A. M. Davis, J. Y. Luan, and W. B. Weeks. 2009. "The Supply and Demand of Chiropractors in the United States from 1996 to 2005." *Alternative Therapies in Health and Medicine* 15 (3): 36–40.
- Eisenberg, D. M., R. B. Davis, S. L. Ettner, S. Appel, S. Wilkey, M. Van Rompay, and R. C. Kessler. 1998. "Trends in Alternative Medicine Use in the United States, 1990–1997: Results of a Follow-Up National Survey." *Journal of the American Medical Association* 280 (18): 1569–75.
- Eisenberg, D. M., R. C. Kessler, C. Foster, F. E. Norlock, D. R. Calkins, and T. L. Delbanco. 1993. "Unconventional Medicine in the United States. Prevalence, Costs, and Patterns of Use." *New England Journal of Medicine* 328 (4): 246–52.
- Federation of Chiropractic Licensing Boards. 2007. "Chiropractic Licensure and Practice Statistics" [accessed on March 20, 2009]. Available at <http://directory.fclb.org/Statistics/LicensureStatisticsUS/tabid/157/Default.aspx>
- Flynn, T. W., R. S. Wainner, and J. M. Fritz. 2006. "Spinal Manipulation in Physical Therapist Professional Degree Education: A Model for Teaching and Integration into Clinical Practice." *Journal of Orthopaedic and Sports Physical Therapy* 36 (8): 577–87.
- Kessler, R. C., R. B. Davis, D. F. Foster, M. I. Van Rompay, E. E. Walters, S. A. Wilkey, T. J. Kaptchuk, and D. M. Eisenberg. 2001. "Long-Term Trends in the Use of Complementary and Alternative Medical Therapies in the United States." *Annals of Internal Medicine* 135 (4): 262–8.
- Martin, B. I., R. A. Deyo, S. K. Mirza, J. A. Turner, B. A. Comstock, W. Hollingworth, and S. D. Sullivan. 2008. "Expenditures and Health Status among Adults with Back and Neck Problems." *Journal of the American Medical Association* 299 (6): 656–64.
- Medical Expenditure Panel Survey, Agency for Health Care Policy and Research. 2009. "Household Component Full Year Files 1996 to 2006" [accessed on March 20, 2009]. Available at http://www.meps.ahrq.gov/mepsweb/data_stats/download_data_files.jsp
- Meeker, W. C., and S. Haldeman. 2002. "Chiropractic: A Profession at the Crossroads of Mainstream and Alternative Medicine." *Annals of Internal Medicine* 136 (3): 216–27.

- National Board of Chiropractic Examiners: Job Analysis of Chiropractic. 2005. "Chaper 8: The Chiropractic Patient" [accessed on September 16, 2008]. Available at http://www.nbce.org/pdfs/job-analysis/chapter_8.pdf
- U.S. Bureau of Labor Statistics. 2008. "Consumer Price Index" [accessed on March 20, 2009]. Available at <http://www.bls.gov/cpi>
- U.S. Bureau of Labor Statistics. 2007. "Employment Projections: National Employment Matrix: 29-1011 Chiropractors" [accessed on March 20, 2009]. Available at <http://www.bls.gov/emp/empoils.htm>
- U.S. Census Bureau. 2007. "National Population Estimates 2000 to 2005" [accessed on March 20, 2009]. Available at <http://www.census.gov/popest/national/asrh/NC-EST2006-sa.html>
- U.S. Census Bureau. 2009. "Metropolitan and Micropolitan Statistical Areas" [accessed on March 20, 2009]. Available at <http://www.census.gov/population/www/metroareas/metroarea.html>

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Appendix SA1: Author Matrix.

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