

CHIROPRACTIC USE IN THE MEDICARE POPULATION: PREVALENCE, PATTERNS, AND ASSOCIATIONS WITH 1-YEAR CHANGES IN HEALTH AND SATISFACTION WITH CARE

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ABSTRACT

Objective: The purpose of this study was to examine how chiropractic care compares to medical treatments on 1-year changes in self-reported function, health, and satisfaction with care measures in a representative sample of Medicare beneficiaries.

Methods: Logistic regression using generalized estimating equations is used to model the effect of chiropractic relative to medical care on decline in 5 functional measures and 2 measures of self-rated health among 12 170 person-year observations. The same method is used to estimate the comparative effect of chiropractic on 6 satisfaction with care measures. Two analytic approaches are used, the first assuming no selection bias and the second using propensity score analyses to adjust for selection effects in the outcome models.

Results: The unadjusted models show that chiropractic is significantly protective against 1-year decline in activities of daily living, lifting, stooping, walking, self-rated health, and worsening health after 1 year. Persons using chiropractic are more satisfied with their follow-up care and with the information provided to them. In addition to the protective effects of chiropractic in the unadjusted model, the propensity score results indicate a significant protective effect of chiropractic against decline in reaching.

Conclusion: This study provides evidence of a protective effect of chiropractic care against 1-year declines in functional and self-rated health among Medicare beneficiaries with spine conditions, and indications that chiropractic users have higher satisfaction with follow-up care and information provided about what is wrong with them. (*J Manipulative Physiol Ther* 2014;37:542-551)

Key Indexing Terms: *Chiropractic; Medicare; Activities of Daily Living; Patient Satisfaction*

National surveys and other data show chiropractic use prevalence rates among those 18 years and older, ranging between 5.6% and 8.6% in the United States.¹⁻³ Among Medicare beneficiaries 70 years and older, chiropractic use is less prevalent, with 2 studies indicating

annual rates ranging between 4.1% and 5.4%.^{4,5} For younger Medicare beneficiaries, chiropractic prevalence rates are closer to national rates, ranging between 6% and 7%.⁶ Although informative, these estimates are not reflective of the population that commonly seeks care from doctors of chiropractic—namely, persons seeking treatment of spine-related health conditions.^{2,7-9} Prevalence of chiropractic use is likely higher in the population of Medicare beneficiaries with back and neck conditions, but how much higher is not known.

Spine-related problems are common in the general adult population, and there is evidence of increasing prevalence as people age.¹⁰⁻¹⁴ As a result, spine conditions reflect a growing portion of health services use and expenditures, particularly under Medicare.^{6,15,16} More significantly, these problems are associated with increased disability by impeding a person's capacity to perform everyday mobility tasks such as walking, stooping, lifting, or reaching. Those mobility tasks can subsequently limit a person's ability to perform basic activities of daily living (ADLs), all of which are crucial to prolonging independence among older adults living in a community setting.¹⁷⁻²²

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Medicare covers several treatment options ranging from the noninvasive like chiropractic and physical therapy to the more invasive, such as steroidal injections and surgery. Studies have shown that the technologically intensive treatment types have grown more dramatically, both in use and in expenditures, than the noninvasive kind over the past 15 to 20 years.^{3,6,12,16,23–26} Although these studies document the increasing use of interventional treatments, they also note that population-level improvements in outcomes and disability have not improved commensurately.

Recent research, however, suggests that chiropractic use benefits older Medicare beneficiaries (>70 years) by protecting them against decline in function and self-rated health (SRH).²⁷ Because that study used Medicare claims to compare outcomes between users of chiropractic and users of medical care treatments in uncomplicated back conditions over a 2-year period, it represents a real-world approximation of the relative benefit of chiropractic use on health outcomes.

Given the escalating costs of treatment and the ramifications of disability on future dependency,^{28,29} it is important to understand the prevalence and the relative effect on health and care, costs of chiropractic use among age-eligible Medicare beneficiaries with spine-related problems. Equally important is how patients view the quality of care received from different treatment types. If treatments have comparable effects on health, but disparate care costs or satisfaction, then policy makers may consider incentives or disincentives to promote particular treatments for certain conditions.

This study uses the Medicare Current Beneficiary Survey (MCBS) linked to Medicare provider claims to examine chiropractic use among Medicare beneficiaries with spine conditions. This research study has 3 objectives: (1) to describe the prevalence of chiropractic use among age-eligible Medicare beneficiaries in general and among those with spine problems in particular; (2) to describe treatment patterns, service trends, and Medicare expenditures among persons who mostly use chiropractic vs those that are users of medical care only; and (3) to determine the comparative effect of chiropractic relative to medical care only on 1-year changes in function, SRH, and satisfaction with care.

METHODS

Study Population

A detailed description of the MCBS, associated technical documentation, and its sample design can be found elsewhere.^{30,31} We used the MCBS survey linked to provider claims between 1997 and 2006 to construct 9 person-year observations for Medicare beneficiaries, which were then pooled to examine changes in health outcomes. The MCBS is a continuous, rotating panel survey of a nationally representative sample of Medicare beneficiaries

sponsored by the Centers for Medicare and Medicaid Services. The Access to Care file contains survey participants' demographic and socioeconomic information, their health and functional status, health care use history, and satisfaction with care responses. The matched claims data include Medicare payment for physician services.³²

Sample

Our sample includes fee-for-service Medicare beneficiaries who were age eligible (>65 years) and living in the community at the time of their first and second interviews. We excluded persons with end-stage renal disease because their functional health trajectory differs from those who do not have permanent kidney failure, and we excluded those who did not survive to the end of the second interview year because of their imminent mortality. Survey participants had to have 2 consecutive interviews 1 year apart to determine changes in health outcomes. Self- or proxy respondents were included in each person-year panel.

To be included in the spine condition subsample, MCBS participants had to have at least 1 claim with an *International Classification of Diseases, Clinical Modification (ICD-9-CM)* diagnosis code falling under the category of "Diseases of the Musculoskeletal System and Connective Tissue" or "Dislocation" or "Sprains and Strains of Joints and Adjacent Muscles" between first and second interviews (see [Appendix 1](#) for the *ICD-9-CM* diagnosis codes used). Diagnoses by medical doctors that contraindicated chiropractic (eg, 839.1 "Cervical Vertebra, open" or 839.3 "Thoracic and Lumbar Vertebra, open") were excluded.

Outcome Measures

We examined 13 outcomes, 5 measuring functional decline, 2 measuring changes in self-assessed health, and 6 reflecting satisfaction with discrete aspects of care. Of the 5 functional health outcomes, the first is decline in ADLs. The ADL measure was the sum of 5 daily activities that the participant reported difficulties in or the inability to perform at the time of their interview: bathing, getting in or out of a chair, dressing, eating, and walking across a room. A decline is reflected by a person adding at least 1 new ADL limitation between interviews. The remaining functional decline measures reflect going from one level of difficulty to a greater difficulty level (eg, from "little difficulty" to "some difficulty") on 4 tasks: lifting or carrying ten pounds (lifting), extending arms above shoulder (reaching), stooping/crouching/kneeling (stooping), and walking ¼ mile or 2 to 3 blocks (walking).

The 2 self-reported health outcomes are decline in SRH and changes in comparative health after 1 year. Decline in SRH occurred if a person rated their general health at a worse level in the second interview compared with the first. The 5 response options were excellent (1), very good

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