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Chiropractic Episodes and the Co-occurrence of Chiropractic and Health Services Use among Older Medicare Beneficiaries

Paula AM Weigel, MS[Doctoral Student],

Department of Health Management and Policy, University of Iowa College of Public

Jason M Hockenberry, PhD[Assistant Professor],

Department of Health Policy and Management, Emory University School of Public Health

Suzanne E Bentler, MS[Doctoral Student],

Department of Health Management and Policy, University of Iowa College of Public Health

Brian Kaskie, PhD[Associate Professor], and

Department of Health Management and Policy, University of Iowa College of Public Health

Fredric D Wolinsky, PhD[Professor]

Department of Health Management and Policy, University of Iowa College of Public Health

Abstract

Objective—The purpose of this study was to define and characterize episodes of chiropractic care among older Medicare beneficiaries, and evaluate the extent to which chiropractic services were used in tandem with conventional medicine.

Methods—Medicare Part B claims histories for 1991-2007 were linked to the nationally representative Survey on Assets and Health Dynamics among the Oldest Old (AHEAD) baseline (1993-1994) interviews to define episodes of chiropractic sensitive care using four approaches. Chiropractic and non-chiropractic patterns of service use were examined within these episodes of care. Of the 7,447 AHEAD participants, 971 used chiropractic services and constituted the analytic sample.

Results—There were substantial variations in the number and duration of episodes, and the type and volume of services used across the four definitions. Depending on how the episode was constructed, the mean number of episodes per chiropractic user ranged from 3.74 to 23.12, the mean episode duration ranged from 4.7 to 28.8 days, the mean number of chiropractic visits per episode ranged from 0.88 to 2.8, and the percent of episodes with co-occurrent use of chiropractic and non-chiropractic providers ranged from 4.9% to 10.9% over the 17-year period.

Conclusion—Treatment for back-related musculoskeletal conditions was sought from a variety of providers, but there was little co-occurrent service use or coordinated care across provider types within care episodes. Chiropractic treatment dosing patterns in everyday practice were much lower

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corresponding author: Paula AM Weigel, MS, Paula-Weigel@uiowa.edu, Room 5217, 4189 Westlawn South, The University of Iowa, Iowa City, IA 52242, Phone number: 319-335-8533, Fax number: 319-384-5125.

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CONFLICTS OF INTEREST

No conflicts of interest were reported for this study.

than that used in clinical trial protocols designed to establish chiropractic efficacy for back-related conditions.

Keywords

Chiropractic; Episode of Care; Observation/Methods; Aged

Introduction

Over the past twenty years, health services research on the use of chiropractic has produced a variety of important insights. Some studies have characterized who uses chiropractic, the conditions and reasons for that use, and annual prevalence rates [1-8]. Others have estimated user and visit volume growth over time, as well as annual expenditures in the U.S. adult population [9, 10]. Still others have characterized chiropractic use within the broader context of all Complementary and Alternative Medicine (CAM) practices [11, 12]. While this research has been informative, it has focused on visits to chiropractors rather than episodes of chiropractic care, which may involve several visits in close temporal proximity in response to a musculoskeletal issue. How chiropractic services are delivered in everyday practice for a particular diagnosis, as well as whether those services are used in tandem with conventional medicine has also not been described.

Chiropractic use within an episode of back-related musculoskeletal care is important to understand because the treatment pattern is an integral part of the philosophy and evidence-based efficacy of chiropractic. The general practice of chiropractic does not advocate a single treatment visit in response to a back-related musculoskeletal issue (i.e., a 'one and done' mentality). Rather, it involves a systematic pattern of visits over a relatively short period to facilitate the intensive manipulation that is needed to correct the underlying issue. Understanding the degree of adherence to a standard chiropractic treatment regimen is crucial if the effectiveness of chiropractic in everyday practice is to be compared to alternative or integrative treatments for back-related musculoskeletal conditions.

It is also important to consider other healthcare services used by the chiropractic patient in order to determine the degree of exclusivity in chiropractic treatment, as the coincident use of other services has implications for both care coordination and comparative effectiveness research. Co-occurrent use of other health services, defined as utilization of non-chiropractic service providers for the same or related condition within a proximal period of time (i.e., within an episode of care), may have positive and negative implications. On the one hand, non-exclusive chiropractic care may indicate beneficial care coordination across health care providers. On the other hand, non-exclusive chiropractic care may indicate the potential risk for contraindicated therapies or health services overuse. Identifying who chiropractic users see within an episode of care for a musculoskeletal issue sheds light on these opposing consequences of co-occurrent service use. Furthermore, if episodes of care are largely non-exclusive, research on the comparative effectiveness of chiropractic may need to take such co-occurrent use patterns into account, as the treatment regimens specified in clinical trials might not necessarily reflect everyday practice.

Previous studies on nonpharmacological, noninvasive treatments show some evidence that spinal manipulation therapy can be an effective approach to managing back pain and disability [13-18]. Moreover, several of these studies have attempted to determine the optimal dosing regimens (in terms of treatment duration, intensity, and modalities) around an episode of care for back conditions. For example, Haas and colleagues [19] found that three to four chiropractic visits per week for three weeks had a positive, clinically important effect on pain intensity and disability at four weeks, regardless of the use of physical

modalities. Similarly, Descarreaux et al. [14] found that 12 treatments within the first month, followed by one maintenance treatment every three weeks decreased disability. Hondras et al. [18] used a spinal manipulation protocol consisting of a maximum twelve visits over a six-week period to compare changes in functional outcomes between spinal manipulation types and minimal conservative medical care, finding significant improvement of spinal manipulation over minimal conservative medical care. And Jette et al. [20] found that average physical therapy care episodes for patients with low back pain lasted five weeks, with a mean of 11 physical therapy visits. Although Stano and colleagues did not focus on the number of visits per episode, they did find that the most appropriate episode window for nine back-related diagnoses was about five to seven weeks [21]. A more recent study [22] of patients choosing chiropractic care found that the average treatment intensity was about seven visits over five weeks. When taken together, these studies suggest that a 3-6 week treatment period during which 7-12 therapeutic visits occur characterizes an appropriate treatment dose in response to back-related musculoskeletal issues.

The studies reviewed above have focused largely on episodes of care developed within protocol-driven clinical trials in working-age and adult populations with an average age less than 65. We are not aware of studies examining episode patterns in older adults (> 70 years old), or what episodes of care in everyday practice look like for back-related conditions among community-dwelling adults that are seen by both chiropractic and other providers. This knowledge gap is important because the etiology of common musculoskeletal conditions in community-dwelling older adults may be quite different from those of working-age adults studied in previous clinical trials [23, 24], and as such, episodes of care in everyday practice may vary significantly from clinical protocols in both chiropractic treatment intensity and concurrent health services use across multiple providers.

Our study makes three contributions towards filling these gaps in the literature. First, we define episodes of care using administrative claims for chiropractic users in a nationally representative sample of older adults. Our episode definitions use duration parameters consistent with the previously cited literature on therapeutic modalities containing multiple, proximal visits for the treatment of back-related conditions. Second, we assess the degree of within-episode co-occurrent use of other health services under four distinct episode definitions. Third, we describe older adults' patterns of chiropractic service use within episodes of care to assess how everyday practice patterns align with clinical trial treatment protocols.

Methods

Data

We used a nationally representative sample of 7,447 older, non-institutionalized Americans from the Survey on Assets and Health Dynamics among the Oldest Old (AHEAD) [25]. AHEAD participants were 70 years old or older at the baseline survey in 1993-1994. We successfully linked the baseline interviews for 6,645 of these AHEAD participants to their Medicare Part B claims histories for calendar years 1991-2007. The University of Iowa IRB and Human Subjects Office approved this research.

Analysis

We identified chiropractic sensitive episodes of care in two ways. One was to determine if a chiropractor was seen at some point in a care episode, while the other was to define chiropractic-sensitive conditions (CSCs). To define CSCs we examined the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes listed in any of the thirteen diagnosis fields of any Medicare Part B claims submitted by a

chiropractor. The top 15 ICD-9 codes (which accounted for 98% of all chiropractic claims) were then designated CSCs, and if one of the individuals in our sample had a claim from a chiropractic or non-chiropractic provider that included one of these codes, that visit was defined as a CSC visit.

Our approach to defining the duration of care episodes considered two mechanisms by which an episode can start, and two mechanisms by which an episode can end. Episode starts can be defined by either a visit to a chiropractor or by a CSC visit to any health service provider. Determining the end of an episode is more complex than determining the start of an episode, as it also affects when potential subsequent episodes begin. The first way we defined the end of an episode was the amount of time that had lapsed since the episode index visit. To draw the broadest window that still maintains a reasonable amount of integrity with regards to the prescribed treatment practice for chiropractic care, we defined this window using a 60-day stopping rule. Under this stopping rule, once the individual has their first observed chiropractic or CSC visit, the next episode can start only after 60 days have passed. This time window is broader than that in the literature reviewed above. However, in sensitivity analyses not shown here we used a 45-day stopping rule and observed similar results. By drawing a wider window in our episode creation strategy, we increase the likelihood of capturing discrete clusters of treatment services for CSC episodes that deviate slightly from more strict protocol-driven episodes.

The second criterion we considered to define the end of an episode of care is a gap rule. We chose a 14-day gap rule. This means if at any point in an episode there is more than a 14-day gap since the last chiropractic or CSC visit, the episode terminates and the next visit after this gap starts a new episode. If there is no gap >14 days after the start of an episode, the episode still terminates at 60 days due to the stopping rule. The use of both criteria (stopping and gap rules) yields an episode count that is at least as great as the count of episodes using the stopping rule alone.

We define “co-occurrence” of health services use as the presence of claims to both chiropractic and other providers for related musculoskeletal conditions within an episode. For example, if an episode period is 60 days, and a patient sees a chiropractor and an internist for a related musculoskeletal condition (as indicated by the presence of a CSC code in any of the claim’s 13 diagnosis fields), then that episode would be defined as having “co-occurrent” use. Because the motivation and/or coordination between chiropractic and non-chiropractic co-occurrent use cannot be determined from claims data, we abstain from using the terms “concurrent” use and “co-managed” care.

All chiropractic use patterns and co-occurrent use analyses were performed for each of the four distinct episode definitions: episodes initiated by a chiropractic visit with endpoints defined by the 60-day stopping rule alone or the 60-day stopping rule plus the 14-day gap rule, and episodes initiated by a CSC visit to any health care provider using the same two episode endpoint rules.

Results

Of the fifteen most commonly occurring ICD-9-CM codes (truncated to the first three digits) among all chiropractic claims, the two most frequently used codes of 739 and 839 accounted for 43% and 24%, respectively, of the primary diagnoses. These codes are used exclusively by chiropractors and indicate nonspecific conditions related to bone, cartilage, and musculoskeletal deformities (739), and dislocations (839). The next three most common primary diagnoses codes were 724 (11%), 723 (5%), and 722 (4%) which pertain to unspecified disorders of the back, cervical region, and intervertebral discs, respectively.

Health professionals other than chiropractors that are likely to see and treat these conditions include primary care providers (defined as physicians who saw the patient in an outpatient setting and who had a specialty of Internal Medicine, Family Practice, General Practice or Geriatrics), diagnostic radiologists, orthopedists, anesthesiologists, and physical therapists. The 10 remaining leading primary diagnosis codes (847, 846, 715, 729, 721, 353, 997, 719, 728, and 738) accounted for over 11%, and again, could be present in any visit to a chiropractor or other medical professional. Subsequently our episodes began when a person had a visit to a chiropractor or to any other health professional with one of these fifteen CSC codes in the primary diagnosis field.

Out of 6,645 linked AHEAD participants, we identified 971 (14.6%) as having used a chiropractor at least once during 1991-2007. Our analysis focuses on these individuals because having at least one chiropractic claim in the observation period is an indicator of being willing to use chiropractic care at some point (although this overestimates the extent of co-occurrent use). The mean number of episodes per chiropractic user during this period for the four different definitions ranged from 3.74 to 23.12. There were 3,630 total episodes when the definition started with a chiropractor index visit and ended by the 60 day stopping rule, with a mean number of episodes per chiropractic user of 3.74. When the 14-day gap rule is added to the chiropractic index visit episode, there were 5,175 total episodes and a mean of 5.33 episodes per chiropractic user. The total number of episodes beginning with a CSC visit to any provider and ending with the 60-day stopping rule was 14,985 which equates to 15.43 episodes on average per chiropractic user. Incorporating the 14-day gap rule into the CSC-initiated visit to any provider resulted in a total of 22,446 episodes, or 23.12 per chiropractic user. The wide variation in the mean number of episodes per person reflects how altering the provider-defined index visit (start criterion) and tightening the window length with gap rules (end criterion) changes the episode frequency, duration, and apparent patterns of chiropractic and other co-occurrent care. Table 1 contains the summary statistics and co-occurrent health services use measures for each episode definition. These numbers and patterns are discussed further by the specification of episode initiation and completion.

Number of Chiropractic Visits and Co-occurrent Use within Episodes by Varying Definitions of Episodes of Care

Episode definition one—Starts with a chiropractic visit and ends based on the 60-day stopping rule—Column 1 in Table 1 contains the episode statistics when using the first definition. The mean episode length in days is 28.93. The percent of episodes involving only a chiropractor under this definition is 89.1%. Stated another way, the percent of episodes that contain any visits to a non-chiropractic provider where the claim included a CSC diagnosis is 10.9%. Stratified by provider type, the percent of all episodes that contained at least one visit to a primary care provider with a CSC diagnosis in the claim is 6%, and the percent of episodes that contained visits to diagnostic radiologists with a CSC diagnosis in the claim is 5%. Just 2% of the chiropractor-indexed episodes included a visit to an orthopedist with a CSC code. Less than 1% of all episodes included a visit to an anesthesiologist or physical therapist with a CSC code.

The mean number of chiropractic visits per episode under this definition is 2.82, while the mean number of visits per episode to a non-chiropractic provider is 0.13. To determine whether a chiropractic-initiated episode might have been preceded by a related visit to any non-chiropractic provider (i.e., co-occurrence in which non-chiropractic services were used first, potentially leading to a chiropractic referral), we looked at a 14-day window prior to the episode's index chiropractor visit. The percent of episodes with any non-chiropractic provider 14 days prior to the chiropractor index visit is just under 4%, indicating that over

96% of chiropractor-indexed episodes started without what could be considered a referral from a non-chiropractic health service provider in a time window that would be reasonable for a patient with a back-related musculoskeletal issue.

Episode definition two—Starts with a chiropractic visit and ends based on either the 14-day gap rule, or if no gap >14 days, the 60-day stopping rule—

Column 2 of Table 1 summarizes data for episodes indexed by a chiropractor visit and ending by the occurrence of one of two conditions: when the time gap between a chiropractic or CSC visit exceeds 14 days, or if no 14-day gap occurs in the episode, when 60 days have passed since the index visit. Under this more restrictive definition, the mean episode length in days is 5.59, vs. 28.93 in the prior definition. The reduction in mean episode length is expected with the refinement in episode end criteria.

The percent of episodes that include only a chiropractor under this definition is 95.4%, or stated another way the percent of episodes including any visits to non-chiropractic providers is 4.5%. The percent of total episodes with primary care providers is 2.6%, diagnostic radiologists 2.3%, and orthopedists 1%. Less than 1% of episodes included visits to anesthesiologists or physical therapists under this definition.

Adding a 14-day gap rule to the episode end criteria changed the mean number of chiropractic visits per episode from 2.82 to 1.79, and the mean number of CSC visits from 0.13 to 0.05. The percent of total episodes with any non-chiropractic provider 14 days prior to a chiropractor index visit is under 3%, indicating that at most a very small percentage of episodes potentially involve a referral to a chiropractor from another health care provider.

Episode definition three—Starts with either a chiropractic or non-chiropractic CSC visit and ends based on the 60 day stopping rule—

Column 3 in Table 1 contains the episode summary statistics for the third definition. The average episode is 22.75 days long (vs. 28.93 in the first definition using a 60-day stopping rule). The percent of episodes involving only a chiropractor is 37.4%, the percent involving only a non-chiropractor is 52.6%, and the percent of all episodes with a chiropractor and any non-chiropractic provider is 9.9%. The percent of episodes that include at least one visit to a primary care provider is 5.1%, and the percent of episodes with at least one visit to a diagnostic radiologist is 3.7%. The percent of episodes with at least one visit to an orthopedic specialist is 2.4%. Again, less than 1% of episodes included a visit to an anesthesiologist or physical therapist.

The mean number of chiropractic visits per episode under this definition is 1.32 (vs. 2.82 in the first definition). The mean number of CSC visits per episode is 1.18, which is substantially larger than the first episode definition (0.13) because many of these episodes begin with a visit to a non-chiropractic provider.

Episode definition four—Starts with a chiropractic or non-chiropractic CSC visit and ends based on either the 14-day gap rule, or if no gap >14 days, the 60-day stopping rule—

Column 4 of Table 1 contains the summary data for the fourth episode definition. Under this more restrictive episode end criterion, the mean episode length is 4.69 days (vs. 5.59 in the second definition). The percent of episodes involving only a chiropractor were 45.6%, the percent involving only a non-chiropractor was 49.5%, and the percent of all episodes with a chiropractor and any non-chiropractic provider is 4.9%. The percent of episodes with primary care providers is 2.4%, diagnostic radiologists 1.9%, and orthopedists 1.3%. Co-occurrent use of anesthesiologists and physical therapists within an episode under this definition is less than 1%.

When episodes start with either a chiropractic or CSC visit and end by either the 14-day gap or 60 day stop criteria, the mean number of chiropractic visits per episode is 0.88 while the mean number of CSC visits per episode is 0.82.

Discussion

We looked at chiropractic patterns of use and co-occurrent use of other healthcare provider services among older Medicare beneficiaries within four distinct definitions for episodes of care. Our episode creation strategies involved combinations of two unique starting rules and two unique stopping rules, with the starting rules being based on index chiropractic or CSC visits to any provider, and the stopping rules being based on the broadest treatment duration window found in the literature about therapies for back-related musculoskeletal conditions. These criteria led to different inferences about how chiropractic care is delivered in everyday practice for older adults, as well as how it is used alongside conventional medical providers.

Episodes with common stopping rules (60-day or 60-day plus 14-day gaps) share similar patterns in terms of co-occurrent use of other providers within episodes. The upper-bound estimate of co-occurrent use (chiropractor plus non-chiropractor) across all episodes is approximately 11%. The lower-bound estimate is 4.6%. Thus, there was very little overlap of care by provider types within our episode definitions among older adults who had used chiropractic care at least once during the 17-year study period. Episodes defined by a chiropractor index visit and a 60-day stopping rule have the highest number of chiropractic visits (2.82) and a mean episode length of 28 days. Even this treatment “dosing” pattern, however, falls short of the therapeutic dose typically studied in chiropractic clinical trials on treatment efficacy for back-related conditions. Given our broad definitions of what constitutes a potential chiropractic episode, our results raise multiple points of interest, most importantly the adherence of everyday dosing practice to trial dosing evidence and the potential for coordination of care across provider types in treating musculoskeletal conditions amenable to chiropractic treatment.

If many of these episodes are for patients seeking treatment for serious back conditions, then the average pattern of visits observed in these everyday practice episodes raise questions about why the dosing pattern is so much less than that found in clinical trial protocols. Specifically, we observed an average of not quite 3 chiropractic visits per episode (for the episode criteria starting with a chiropractic visit) over an average of four weeks, when the evidence from clinical trials indicates that 7-12 visits over up to six weeks is the efficacious therapeutic dose. Additional analyses revealed that the percentage of episodes that reached the trial visit threshold was only about 10%. Therefore, fully 90% of these chiropractic episodes fell short of the therapeutic dose tested in clinical trials. Everyday dose patterns in older adults may be different than those described in the clinical trial literature for many reasons—because of the etiology of the musculoskeletal condition or because treatment regimens for this older population are modified by chiropractors in consideration of patients’ overall health status and treatment preferences. Determining why these patterns differ for older adults and whether the lower dose results in similarly efficacious or satisfactory outcomes is a topic for future study.

Although we cannot examine care coordination directly with these data, our results do provide some insight into the potential extent of coordination. Using the episode definition in which all episodes start with a chiropractic visit, less than 4% of chiropractic episodes have a non-chiropractic visit in the 14 days prior to the episode start. In addition, 49-52% of the episodes under our last two definitions, where episodes could start with a non-chiropractic visit, do not involve a chiropractor, and 37-46% involve only a chiropractor.

Together, this suggests that there is likely very little referral to chiropractic from other non-chiropractic providers and vice versa, indicating that co-management simply does not occur.

Previous research on CAM use suggests this may be due in part to both patient attitudes and provider behaviors. Among those using at least one form of CAM therapy in a prior year period, 63% to 72% of survey respondents did not disclose this to their medical doctor [2]. Respondents reported that the reason for nondisclosure was because they felt they did not need to—either it was not important in their view for their medical doctor to know, or the medical doctor never asked about it, or they felt it was none of their medical doctor's business. A more recent regional survey showed that 47% of community-dwelling older adults using CAM did not disclose their CAM use to a primary provider [26]. Research on attitudes of both licensed CAM providers (chiropractors, massage therapists, acupuncturists, and naturopathic physicians) and of primary care physicians found similar results [12, 13]. Primary care physicians reported not making formal referral relationships with chiropractors [13]. Conversely, CAM providers appear not to regularly discuss with medical doctors the care that was being provided to patients that were seeking care concurrently from both conventional and CAM providers [12].

The evidence in Table 1 indicates that the prevalence of co-occurrent use of chiropractic and non-chiropractic care in everyday practice for older adult patients seeking treatment of back-related musculoskeletal conditions is very low. Thus, the degree of care coordination and referral, if and when it is occurring, must be at least as low, if not lower. Our findings suggest that there is room for substantial improvement of care coordination across the provider spectrum in treating chiropractic sensitive conditions.

Limitations

Our study is not without limitations, and three warrant mention here. The first is that our study used administrative claims to characterize episodes of care, and the severity and chronicity of the back-related musculoskeletal condition is not observable with these data. Therefore, determining what would have been the appropriate dose for each episode of care is not possible [21, 27]. Furthermore, the absence of patient-level clinical information regarding condition severity and chronicity make our findings about low dose treatment for back-related musculoskeletal episodes in older adults difficult to interpret.

A second limitation of our study is that the episode definitions force an episode to end at sixty days whether in fact the episode is truly over or not. There may be individuals in the sample who experience on-going musculoskeletal pain for which they seek regular chiropractic or other treatment, and which by clinical standards might be considered care for a chronic condition rather than for discrete episodes of musculoskeletal conditions. The use of bundling rules to define episodes of care based on claims data may improperly characterize the true treatment pattern of musculoskeletal pain stemming from different underlying causes and chronicity.

A third limitation of our study concerns the potential effect of left and right data censoring on the results, inasmuch as the claims data are time-bounded (1991-2007). However, we found only 133 (3.7%) chiropractic-initiated episodes in the first two months of 1991 that could have been affected by earlier within-episode visits occurring in late 1990. Although the within-episode patterns of these earliest episodes might differ from later episodes, their impact on the overall summary statistics shown in Table 1 would be trivial. The potential for right censoring affecting our results is even less, as there were only 27 (0.7%) chiropractic-initiated episodes in the last two months of 2007.

Conclusion

Our results suggest that among older adults willing to use chiropractic, treatment for back-related musculoskeletal conditions is sought through multiple channels. Our analysis reflects everyday practice, suggesting that there is very little co-occurrent health services use or coordinated care across provider types within and around an episode of care.

While comparative effectiveness analysis is a tool that can discern the most effective treatments used in practice, it requires knowing how treatments, particularly adjunctive therapies, are actually delivered in everyday practice. With respect to spinal manipulation therapy for musculoskeletal issues, the etiology of the condition and the effect of dosing in the form of the number of visits are crucial to establishing effectiveness. Reconciling recommended therapeutic doses of chiropractic treatment determined from clinical trial protocols with treatment regimens typically delivered in everyday practice, however, also needs to take into consideration the differing health needs and preferences of a distinctly different population—older adults. There is a substantial knowledge gap related to the comparative effectiveness of chiropractic and other forms of care for musculoskeletal conditions in older adults that should be addressed in future research.

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Table 1

Distribution of episode length, and number of visits to chiropractors and other healthcare providers by episode definition.

	Episode Definition 1: Starts with a chiropractic visit and ends 60 days thereafter	Episode Definition 2: Starts with a chiropractic visit and ends 60 days thereafter, or when a 14-day gap occurs, whichever comes first	Episode Definition 3: Starts with a chiropractic visit or a CSC visit to a non-chiropractor and ends 60 days thereafter	Episode Definition 4: Starts with a chiropractic visit or a CSC visit to a non-chiropractor and ends 60 days thereafter, or when a 14-day gap occurs, whichever comes first
Mean episode length in days (SD)	28.93 (22.24)	5.59 (12.81)	22.75 (22.82)	4.69 (11.18)
Proportion of episodes involving only a chiropractor (SD)	0.891 (0.31)	0.954 (0.209)	0.374 (0.484)	0.456 (0.498)
Proportion of episodes with both chiropractic and nonchiropractic providers (SD)	0.109 (0.312)	0.046 (0.208)	0.099 (0.299)	0.049 (0.217)
Proportion of episodes with:				
primary care providers (SD)	0.060 (0.238)	0.025 (0.158)	0.051 (0.219)	0.024 (0.152)
diagnostic radiologists (SD)	0.050 (0.037)	0.023 (0.149)	0.037 (0.188)	0.019 (0.135)
orthopedists (SD)	0.024 (0.154)	0.010 (0.100)	0.024 (0.049)	0.013 (0.111)
anesthesiologists (SD)	0.009 (0.095)	0.003 (0.059)	0.006 (0.081)	0.004 (0.059)
physical therapists (SD)	0.001 (0.037)	0.000 (0.019)	0.002 (0.049)	0.001 (0.037)
Mean number of chiropractic visits in an episode (SD)	2.82 (2.46)	1.79 (2.11)	1.32 (2.13)	0.88 (1.65)
Mean number of CSC visits in an episode (SD)	0.13 (0.94)	0.05 (0.74)	1.18 (2.16)	0.81 (1.72)
Proportion of episodes with any non-chiropractic visit 14 days prior to the chiropractic index visit (SD)	0.039 (0.195)	0.027 (0.164)	N/A	N/A