

Influence of Initial Provider on Health Care Utilization in Patients Seeking Care for Neck Pain

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Abstract

Objective: To examine patients seeking care for neck pain to determine associations between the type of provider initially consulted and 1-year health care utilization.

Patients and Methods: A retrospective cohort of 1702 patients (69.25% women, average age, 45.32 ± 14.75 years) with a new episode of neck pain who consulted a primary care provider, physical therapist (PT), chiropractor (DC), or specialist from January 1, 2012, to June 30, 2013, was analyzed. Descriptive statistics were calculated for each group, and subsequent 1-year health care utilization of imaging, opioids, surgery, and injections was compared between groups.

Results: Compared with initial primary care provider consultation, patients consulting with a DC or PT had decreased odds of being prescribed opioids within 1 year from the index visit (DC: adjusted odds ratio [aOR], 0.54; 95% CI, 0.39-0.76; PT: aOR, 0.59; 95% CI, 0.44-0.78). Patients consulting with a DC additionally demonstrated decreased odds of advanced imaging (aOR, 0.43; 95% CI, 0.15-0.76) and injections (aOR, 0.34; 95% CI, 0.19-0.56). Initiating care with a specialist or PT increased the odds of advanced imaging (specialist: aOR, 2.96; 95% CI, 2.01-4.38; PT: aOR, 1.57; 95% CI, 1.01-2.46), but only initiating care with a specialist increased the odds of injections (aOR, 3.21; 95% CI, 2.31-4.47).

Conclusion: Initially consulting with a nonpharmacological provider may decrease opioid exposure (PT and DC) over the next year and also decrease advanced imaging and injections (DC only). These data provide an initial indication of how following recent practice guidelines may influence health care utilization in patients with a new episode of neck pain.

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The social and economic burdens of neck pain are immense, and neck pain is regarded as a major public health problem.¹ Approximately half of all individuals will experience a clinically important neck pain episode over the course of their lifetime.¹ Although 80% of people with neck pain eventually seek care,² there is no consensus regarding the optimal provider to begin an episode of care. Research supports that the health care system entry point (ie, the type of provider a patient sees first) for an episode of low back pain affects downstream health care utilization.^{3,4} However, in patients with neck pain, there is little information on the influence of entry point into the health care system on downstream health care utilization.

Many of the recommendations for the management of patients with neck pain have

been extrapolated from the low back pain literature,⁵ yet little is known about how these recommendations influence outcomes for patients with neck pain. Current recommendations from the Centers for Disease Control and Prevention (CDC)⁶ and the American College of Physicians (ACP)^{7,8} in patients with low back pain favor nonpharmacological management as front-line treatment. Although most patients initially consult with a primary care provider (PCP) for a new episode of neck pain, patients also consult with chiropractors (DCs),⁹ physical therapists (PTs),¹⁰ and medical specialists such as physiatrists¹¹ and neurologists.² Accordingly, it is imperative to evaluate the difference in health care process and outcomes in patients initially consulting with nonpharmacological providers (ie, DCs and PTs) and pharmacological providers (ie, specialists) in comparison to PCPs, who

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are the providers traditionally consulted for a new episode of neck pain. Evaluating the health care processes and outcomes in front-line providers for neck pain will provide support for management pathways and care consistent with recent guidelines.

Therefore, the purpose of this study was to examine a cohort of patients seeking care for a new episode of neck pain to determine the associations between the type of initial health care provider consulted and 1-year neck pain–related health care utilization.

PATIENTS AND METHODS

Patients consulting a health care provider for a primary complaint of neck pain from January 1, 2012, to June 30, 2013, who were insured under one plan, University of Utah Health Plans (UUHP), were included in the analysis. Patients insured under the UUHP were participating in either a Medicaid capitated plan or a private, employer-based plan. Patients sought care from hospital-based or ambulatory outpatient clinics in Salt Lake City and surrounding coverage areas. This study was approved by the University of Utah Institutional Review Board.

We identified patients with a new consultation with a health care provider for a primary or secondary diagnosis of neck pain using claims data on the basis of the following *International Classification of Diseases, Ninth Revision (ICD-9)* codes: 721.0, 721.1, 722.0, 722.4, 722.71, 722.81, 722.91, 723.0-723.9, 739.0, 739.1, and 847.0. We defined the date of the first consultation with a health care provider with a neck pain ICD-9 code as the index visit. We included patients with a diagnosis of neck pain for which a patient had not sought care in the past 90 days. Therefore, we excluded any patients who had a neck pain ICD-9 code associated with any claim in the preceding 90 days. The 90-day washout period was chosen to provide adequate time to reflect a pain-free state while acknowledging the biases associated with a washout period less than 1 year.¹²

From the sample of patients consulting a health care provider for a new episode of neck pain, we categorized the initial provider consulted on the index visit as (1) PCP (including family medicine, internal medicine, or advanced practice providers such as nurse practitioners or physician assistants working in primary care settings), (2) PT, (3) DC, or (4) medical specialist

(including neurologists and physiatrists). These specific provider types were included in the analysis because they are the most common providers consulted for neck pain.³ Visits to these providers were covered under the terms of UUHP policies (Medicaid capitated plan and the private, employer-based plan) without prior referral from a PCP or insurance preauthorization. Index visits with other providers were excluded, as were visits for which there were missing data on the provider type. We further excluded patients younger than 18 years and patients with diagnoses that may require utilization of specific procedures after the initial visit including a cervical vertebral fracture, cervical spinal cord injury, or malignant neoplasm (Figure). We were unable to measure prior opioid exposure, severity of symptoms, patient-reported outcomes, or patient factors related to accessing providers within the data set.

Comorbidities

We identified comorbidities that may influence neck pain prognosis or health care–seeking behaviors from recorded ICD-9 codes in the claims data in a 1-year period following the index date. We recorded the following comorbidities: low back pain,¹³ fibromyalgia,¹⁴ chronic or generalized pain,¹⁵ substance abuse, depression, anxiety, tobacco use, and obesity. See Table 1 for specific ICD-9 codes used to identify each comorbidity.

Outcome Variables

We identified health care utilization outcomes from billed procedure codes for a 1-year period after the index visit for neck pain. We identified surgical procedures performed in the cervical spine (spinal arthrodesis, discectomy, laminectomy, or fusion); injections in the cervical spine or nerve blocks; advanced imaging of the cervical spine via magnetic resonance imaging (MRI), computed tomography, and radiography; and prescription of an opioid within 14 days, 30 days, or 1 year after the index visit.

Data Analyses

Statistical analyses were conducted using Stata software, version 14.2 (StataCorp LLC). Baseline characteristics and health care utilization variables were compared between index providers using 1-way analyses of variance for continuous variables and χ^2 tests for categorical variables. When comparing the duration of the episode of

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