Does Unrestricted Direct Access to Physical Therapy Reduce Utilization and Health Spending?

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OVERVIEW

This Policy Brief summarizes the early findings on utilization and health spending patterns of patients with low back pain (LBP) in the northwestern United States that had varying levels of direct access to physical therapy services. The key findings are:

- Patients with LBP who saw a physical therapist first had significantly lower costs across almost all settings compared to patients who saw another provider first with a few exceptions.
- Patients with LBP who saw a physical therapist first had significantly lower probability of having an ED visit, lower imaging rates, and lower probability of an opioid prescription compared to patients who saw another provider first.
- Among patients who saw a physical therapist at a later point in time than the initial diagnosis of LBP took on average 75 days to see a physical therapist in states without restrictions, but 69 days in restricted states though the results were not significantly different.
- Patients who did not see a physical therapist first were most likely to see a chiropractor at the initial date of LBP diagnosis.

The findings from this study suggest that seeing a physical therapist as the first point of care compared to seeing another provider may reduce utilization of potentially costly services, which have an impact on health care costs across all settings.

The authors also found that removing state restrictions on PT access may result in better imaging and opioid outcomes for select populations though with unclear impact on cost savings. Although utilization rates did not vary significantly by state restriction among patients who had PT first versus PT later, patients who lived in states with restrictions tended to have lower costs of care. On the other hand, among patients who had PT first versus no PT, patients living in restricted states had significantly higher utilization rates for imaging and opioid prescriptions, but there were no significant differences in costs in the related settings of outpatient and pharmacy. These patients, however, had fewer ED visits, which may be related to lower hospitalization costs.

The policy implication of this study is that states should consider reviewing their laws that restrict direct access to physical therapy services. The type and extent of the PT access restrictions within state law may affect the amount of health care utilization and cost savings.

INTRODUCTION

The University of Washington and The George Washington University with funding through the State Health Policy Program from the Health Care Cost Institute and the Arnold Foundation investigated the relationship between how physical therapy (PT) services are accessed – through direct access or where a referral is required – and health spending using health insurance claims data. The study is intended to inform state policymakers who are determining policies on access to PT services without physician referral. This Policy Brief discusses the early findings on utilization and health spending patterns of patients with low back pain in the northwestern United States that had varying levels of direct access to PT services.

BACKGROUND

Low back pain (LBP) is the most common type of pain experienced in the United States, with 25% of the US population reporting at least one full day of LBP within the last 3 months.[1] LBP is also the number one contributor to years lived with disability and the number three contributor to disability adjusted life years (DALYs) in the US.[2] Back pain is estimated to cost the United States up to $90.6 billion in direct costs and $19.8 billion in indirect costs;[3] the indirect costs are due to missed days of work, disability, and low productivity. The health care costs for LBP continue to grow at a pace greater than non-LBP expenditures.[4]

Symptoms of LBP are attributable to a variety of causes, with the great majority being musculoskeletal pain that frequently resolves without direct care within a short period of time. There are other less common causes for LBP, however, that require immediate treatment such as kidney infections and kidney stones, and more serious life-threatening conditions including cancer, spine infections, and acute spinal cord compression. Musculoskeletal LBP can be treated in a variety of ways, often in combination, such as medications, surgeries, exercise, acupuncture, massage therapy, cognitive behavioral therapy, chiropractic services, and PT services.[5]

With unrelenting back pain, patients often visit the Emergency Department (ED) where patients are screened for the cause of LBP and typically given a medication prescription and education on back exercises. Prescription drugs, including analgesics, nonsteroidal anti-inflammatory drugs (NSAIDS), opioids, steroids and muscle relaxants are commonly prescribed to treat back pain. As opioid prescriptions for back pain have increased, EDs have seen a concurrent increase in drug overdoses.[6] Opioids have not been found to significantly improve health outcomes,[7] and instead are associated with an increase in mortality risk.[8]

A visit to a specialist may result in a premature turn to imaging services to identify a problem. It has been found that premature use of imaging leads to greater health care costs without health benefits.[9,10] Although people with LBP may seek care in a variety of settings from doctors' offices to ED to non-physician services, PT may be a potential cost-effective way to treat LBP. This Policy Brief highlights findings from a study comparing health care utilization and spending of patients with LBP who access physical therapists directly, require a referral before physical therapy services are initiated or who seek services from another provider in the northwestern part of the United States.

POLICY ISSUE

Literature suggests that engaging physical therapists earlier in the plan of care may reduce expensive and unnecessary services, but many of these studies are based on one setting, state or insurance plan.[11,12,13,14] Patients that may benefit from PT services do not receive these services for many reasons, among them may be that they are unaware whether there are benefits to PT, seek PT

services too late, or cannot get a referral from their primary care provider (PCP) in a timely fashion. Without unrestricted access to PT, patients with LBP require a referral typically from their PCP. Only a third of US states, however, allow unrestricted access to PT services without a physician's referral.

As licensed health care providers, physical therapists are regulated by state practice acts that delineate the requirements for patient access to care. State law may restrict patient access by requiring a physician referral prior to initiating PT services. As of January 1, 2015, all fifty states and the District of Columbia (DC) allow for some form of direct access to PT.[15] Eighteen states allow unrestricted access as no physician referral is required. Twenty-five states and DC have provisions in place such as time limits on how long a patient can be seen by a physical therapist before requiring a physician visit or allowing certain physical therapists direct and full access to patients based on level of experience or educational degree. Seven states limit access to PT by requiring oversight by the primary care provider, restricting access to only limited patient populations, or requiring a previous diagnosis by a PCP.

State policymakers are challenged by their constituents to protect the public interest and safety while providing access to cost-effective and efficient health care. In regards to PT, there has been increasing pressure to allow patients the ability to seek direct services while assuring the public that it is safe to do so. It is hoped that the results of this study will assist state policymakers in their deliberations.

STUDY APPROACH

The question that this study addressed was: Do states allowing for unrestricted direct access to PT have lower utilization and health care costs for patients with LBP, and are there any unintended consequences of direct access? To address this question, the authors focused on a sample of adult (age 18 to 64 years) private health insurance beneficiaries with a primary diagnosis of LBP who received health services in one of six states in the northwest region of the US. Three of these states are considered to have unrestricted access during the study period: Alaska, Idaho, Montana. The other three states had various limitations on PT access during the study period: Oregon, Washington, and Wyoming.[15] Washington had provisions around scope of practice such as training requirements for spinal manipulation. Wyoming had degree and referral requirements for physical therapists. Oregon had a 60-day restriction on treatment time by a physical therapist without a referral.

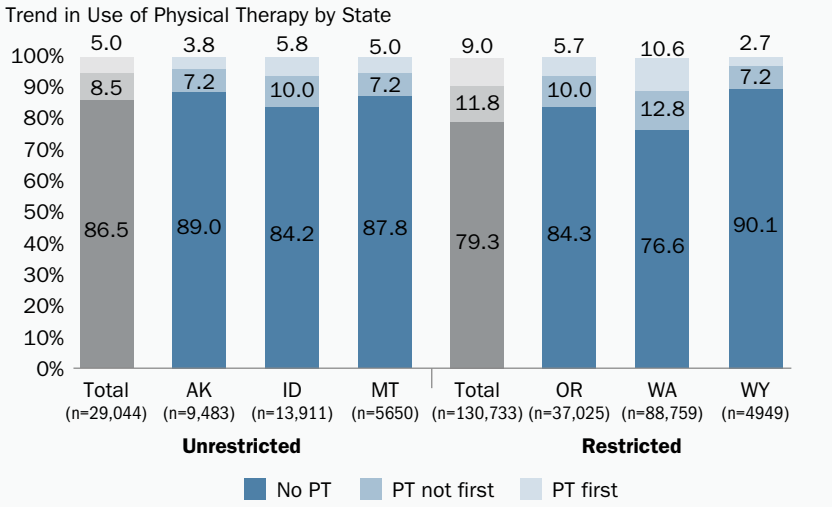
The authors compared claims data of patients across three groups: 1) patients that saw only a physical therapist on the initial date of diagnosis ("PT first"), 2) patients who saw another provider on the initial date of diagnosis and saw a physical therapist at a later date within the year ("PT later"), and 3) patients who saw another provider on the initial date of diagnosis and never saw a physical therapist within the year ("No PT"). Since this study was observational, the authors were not able to randomize who saw a physical therapist and who did not. By not randomizing, the results may be biased because patients who saw a physical therapist directly may be fundamentally different from a patient who saw another provider. For example, patients who saw a physical therapist first may do so because they live close to a physical therapist, which may also be associated with living in an urban area and having more access to health care services in general. To reduce this bias, the authors use a statistical approach of estimating who sees a physical therapist first using distance between patient and provider, then estimating the impact of seeing a physical therapist on utilization and spending outcomes.

The authors controlled for patient characteristics to adjust for utilization and cost differences that may be due to the patient

complexity. Utilization and cost of care outcomes were based on a one-year period from the initial LBP diagnosis for all episodes of LBP between 2009 and 2013. Utilization measures included services such as imaging studies (e.g., radiography, MRI, or CT scan), ED visits, and receipt of opioid prescriptions. Cost measures included patient and provider costs by setting including provider office, outpatient departments (including laboratories), inpatient departments, and pharmacy. In addition, patient out-of-pocket as well as total patient and provider costs were calculated across the four settings. (See Data and Methods below for more detail.)

FIGURE 1
Demographics of Sample by State Restriction and Access to Physical Therapy

PT=physical therapy, PPO = Preferred Provider Organization, POS: Point of Service; Unrestricted states: AK, ID, MT; Restricted states: OR, WA, WY; Co-morbidity defined using Elixhauser method (see Data and Methods below for details on method).



FINDINGS

Sample and Patient Demographics

The authors identified 159,777 beneficiaries with a primary diagnosis of LBP between 2009 and 2013 across the six states under study. The incidence rate of LBP was 82 new primary LBP diagnosis per 1000 beneficiaries, which was consistent across all states studied and aligned with known LBP incidence ranges.[16] A majority of the beneficiaries were seen in states that had some restrictions on direct access to PT services. The rate of patients who obtained services directly from physical therapists, however, was similar in most states except Wyoming (Figure 1). The patient population seeking care for LBP was more likely female and near evenly distributed across the age continuum above age 24, however there was a slight skew towards the higher age range (Table 1). The sample that saw a physical therapist first had the fewest comorbidities. Nearly everyone in the sample was in an open insurance network such as a Preferred Provider Organization rather than a closed insurance network such as a Health Maintenance Organization, which may reflect the HCCI sample. Although open network insurance plans may allow patients to go directly to a physical therapist, state law would supersede insurance plan allowances such that state law may require individuals to obtain a referral prior to seeing a physical therapist.

TABLE 1
Demographics of Sample by State Restriction and Access to Physical Therapy

PT=physical therapy, PPO = Preferred Provider Organization, POS: Point of Service; Unrestricted states: AK, ID, MT; Restricted states: OR, WA, WY; Co-morbidity defined using Elixhauser method (see Data and Methods below for details on method).

	Unrestricted State			Restricted State		
	PT First	PT Later	No PT	PT First	PT Later	No PT
Sample Size (#)	2,516	2,472	1,456	11,699	15,418	103,616
Female (%)	65.5	56.2	53.0	63.9	54.8	52.7
Age (%):						
18-24	9.0	8.2	10.0	7.3	7.0	7.9
25-34	19.3	16.3	19.3	22.3	17.8	19.8
35-44	19.7	19.8	22.1	27.1	25.0	24.3
45-54	24.2	24.0	23.8	22.3	23.9	23.9
55-64	27.8	31.6	24.8	21.0	26.4	24.1
Open Network Insurance Plan (i.e., PPO, POS) (%)	97.3	95.0	95.1	96.0	94.9	94.4
Co-morbidity index (0=low, 1=high) (#)	0.012	0.0425	0.0344	0.0054	0.0352	0.0383

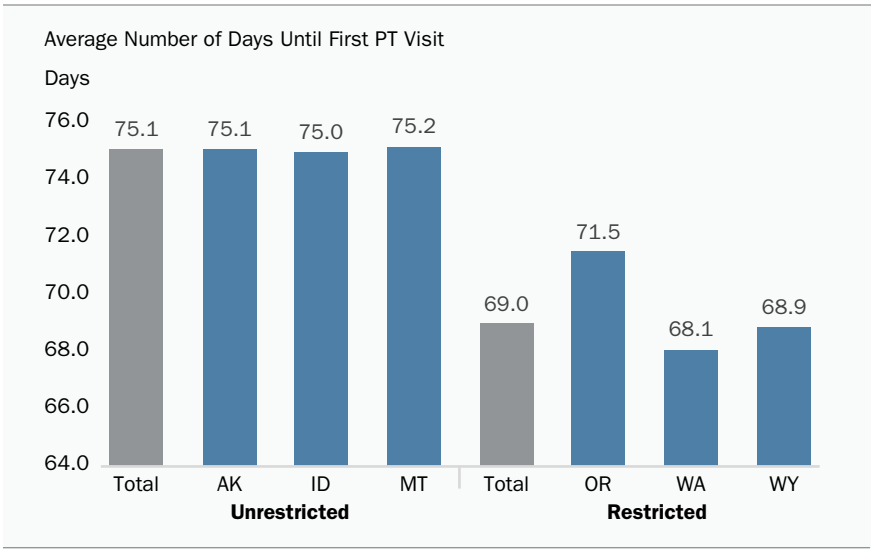


FIGURE 2
Demographics of Sample by State Restriction and Access to Physical Therapy

PT=physical therapy, PPO = Preferred Provider Organization, POS: Point of Service; Unrestricted states: AK, ID, MT; Restricted states: OR, WA, WY; Co-morbidity defined using Elixhauser method (see Data and Methods below for details on method).

Utilization

A higher proportion of patients living in restricted states saw a physical therapist at some point in time (20.8%) versus patients in unrestricted states (13.5%) (Figure 1). Washington state had the largest share of beneficiaries who saw a physical therapist first, which may be reflective of the density of physical therapists in the state.[17] Among patients who did not see a physical therapist first but eventually saw a physical therapist within a year of LBP diagnosis took on average 75 days to receive PT in unrestricted states, but 69 days on average in restricted states though the results are not significantly different (Figure 2). This trend may be counterintuitive given the assumption that states with restricted access may result in a longer delay. This trend may be reflective of patient's or referring provider's lack of awareness of PT services, the extent of the practice restrictions, or the availability of physical therapists in the area especially in these largely rural unrestricted states. Further study may be warranted.

Patients who did not see a physical therapist first were most likely to see a chiropractor at the initial date of LBP diagnosis (unrestricted states: 38.7% PT Later versus 75.1% No PT; restricted states: 50.4% PT Later versus 63.7% No PT). Patients who never saw a physical therapist were more likely to see a chiropractor than those who eventually saw a physical therapist. The next most common first provider among those who saw a physical therapist later were orthopedic providers (unrestricted states: 14.8%; restricted states: 9.1%). Among patients who never saw a physical therapist, the second most common provider was an acupuncturist in restricted states (8.4%), and a radiologist in unrestricted states (4.6%).

The authors found that patients who had PT first had significantly lower rates of ED visits, imaging and having an opioid prescription compared to patients who had PT later or never had PT (Table 2 – Model 1 and 2). The lower rate of opioid prescription may be related to the prescribing restrictions on physical therapists. Once accounting for patient characteristics and distance between patient and provider, state restrictions did not play a significant role in the utilization rates when comparing among patients who had PT first versus PT later (Table 2 – Model 1). State restrictions significantly increased imaging and opioid scripts but reduced ED visits when comparing among patients who had PT first versus no PT (Table 2 – Model 2).

TABLE 2
Patient Utilization Differences with Physical Therapy First versus Later or No Physical Therapy

Note: Margins reported. Instrumental variable approach using two-stage residual including with bootstrapped residuals. Probit used for all models and controlling for patient gender, age, co-morbidities, year using robust standard errors; instrument is distance between patient and provider; - lower, + higher, NS=not significant, –/+ p<0.01, –/++ p<0.005, –––/+++ p<0.001

	Model 1 – PT First v. PT Later		Model 2 – PT First v. No PT	
	PT First (v. PT Later)	Restricted (v. Unrestricted State)	PT First (v. No PT)	Restricted (v. Unrestricted State)
Had ED Visit	–––	NS	––	––
Any MRI/CT Scan	–––	NS	––	+++
Any Radiography	–––	NS	––	+++
Had Opioid Script	–	NS	NS	+++

Cost of Care

Total cost of care is the sum of physician, outpatient, hospital, and pharmacy costs. Patients who had PT first had significantly lower total costs of care compared to those that had PT later or no PT after controlling for patient characteristics and distance between patient and provider (Table 3 – Model 1 and Model 2). Looking more carefully at costs across health care settings, patients with PT first had lower physician and outpatient costs, and to a lesser extent from lower hospital costs, compared to patients who had PT later (Table 3 – Model 1). The lower cost of care by patients with PT first appeared to be driven by lower outpatient costs (Table 3 – Model 2). Pharmacy costs did not appear to contribute to lower total cost of care in either models.

The authors found that patients living in restricted states had significantly lower costs of care compared to patients living in unrestricted states (Table 3 – Model 1 and Model 2). These lower costs appeared to be related to lower physician costs for both groups of patients. Among the pool of patients who had PT first versus later, patients living in restricted states also had lower outpatient costs than those living in unrestricted states (Table 3 – Model 1). Among the pool of patients who had PT first versus no PT, patients living in restricted states had had lower hospital costs compared to those in unrestricted states (Table 3 – Model 2).

Out-of-pocket costs, which includes co-pays, deductibles, and coinsurance, is the cost-sharing of total health care costs borne by patients, which may occur in any health care setting (Table 3). There were no significant differences in the out-of-pocket costs between patients who had PT first versus PT later. However, patients had significantly lower out-of-pocket costs if they had PT first versus no PT. Patients living in restricted states had lower out-of-pocket costs compared to patients living in unrestricted states when considering a pool of patients who had PT at some point in time (Table 3 – Model 1), but the out-of-pocket costs were not significantly different among a pool of patients who had PT first versus no PT (Table 3 – Model 2).

STUDY LIMITATIONS

There are a few limitations of this study. First, LBP is a condition that may recur for many years over the course of the lifespan so determining exactly when LBP is resolved is not feasible. The authors attempted to mitigate any pre-existing back pain on utilization and outcomes by defining a "clean" period and excluding patients with high risk health conditions in that period. Also, although the authors only looked at one year of services, although patients are continually using health services throughout the study period. Second, claims data does not provide information on the benefit designs. The authors are only able infer the impact of state laws on the interpretation of the plan benefits. Third, timing of PT services is a challenge to define. For example, on the initial diagnosis date, multiple providers may have been seen including a physical therapist. Since no time stamp exists, the authors assumed that if a physical therapist was seen on the same day

TABLE 3

Patient Cost Differences with Physical Therapy First versus Later or No Physical Therapy

	Model 1 – PT First v. PT Later		Model 2 – PT First v. No PT	
	PT First (v. PT Later)	Restricted (v. Unrestricted State)	PT First (v. No PT)	Restricted (v. Unrestricted State)
Out-of-Pocket Costs	NS	––	–––	NS
Physician Costs	–––	–––	NS	–––
Outpatient Costs	–––	––	–––	NS
Hospital Costs	–	NS	NS	–––
Pharmacy Costs	NS	NS	NS	NS
Total Costs	–––	–––	–––	–––

Note: Margins reported. Instrumental variable approach using two-stage residual inclusion with bootstrapped residuals. Two-part model using probit in first part and gamma distribution with log link and robust standard errors in second part for all costs except total costs in both models and physician costs in Model 1. All costs deflated to 2009 dollars and all models control for patient gender, age, co-morbidities, year using robust standard errors; instrument is distance between patient and provider; - lower, + higher, NS=not significant, –/+ $p<0.01$, –/++ $p<0.05$, –––/+++ $p<0.001$

as another provider, the authors assigned the patient as seeing another provider first followed by a physical therapist.

CONCLUSIONS AND POLICY IMPLICATIONS

The findings from this study suggest that seeing a physical therapist as the first point of care compared to seeing a physical therapist at a later point in time (or not seeing a PT) reduces utilization of potentially costly services. Of particular interest was the significant decrease in opioid prescription, ED visits, and imaging for those patients receiving PT first. The potential reduction in opioid prescriptions is notable given the increasing awareness on the overprescription of opioids and the high risk of substance abuse. These findings suggest that having access to PT could have an impact on health care costs including out-of-pocket costs across all settings. For example, lower outpatient costs appear to be due to lower use of imaging. Further investigation is needed to determine whether lower physician office costs may be due to a difference in the number of visits, and the use of lower cost services or labor.

State restrictions on access to PT had no significant effect on utilization when comparing among patients who had PT first versus later. Despite these nonsignificant results, these patients did see lower cost of care when living in a restricted state versus an unrestricted state. The lower cost could be associated with prescribing restrictions and/or greater use of lower cost providers in restricted states. Alternatively, the lower cost could be associated with access to care differences such that restricted states are more urban than unrestricted states, which are more rural. Further investigation is needed.

When comparing within a pool of patients who had PT first versus no PT, patients living in states with restrictions on access to PT had significantly higher utilization of imaging services and higher rates of opioid prescriptions yet lower rates of ED visits. These results suggest that removing restrictions on access to PT may result in better imaging and opioid outcomes among select populations, but may not benefit ED visit rates.

Given the findings of this study, states should consider reviewing their laws that restrict direct access to physical therapy services. This study suggests that having direct access to physical therapy services may lead to decreases in health care utilization and costs, especially in opioid prescription, ED visits and imaging. The type and extent of the PT access restrictions within state law may affect the amount of health care utilization and cost savings. Although further study is required, it appears that some practice act restrictions are less deleterious to access and subsequent health utilization and cost than others.

DATA AND METHODS

This study used private health insurance data from 2009 to 2013 provided by the Health Care Cost Institute. Included patients had a new LBP diagnosis between July 2009 to December 2012 using IDC-9-CM codes in the primary diagnosis field across all insurance claims files. Patients had a minimum six-month clean period. The authors excluded patients with a prior history of LBP or any prior serious diagnoses such as cancer and non-musculoskeletal reasons for back pain.

Patients were identified as seeing a physical therapist first based on the provider of service or the presence of CPT code 97001 for evaluation and management by a physical therapist, but excluding CPT code 97002 for re-evaluation and management by a physical therapist within offices, retail clinics, urgent care, outpatient hospitals, emergency rooms, ambulatory surgical centers, independent clinics, federally qualified health centers, and rural health clinics. Patients who saw another provider on the index visit

date were then categorized into patients who never saw a PT and patients who saw a physical therapist at some point using the PT provider of service code, and CPT codes 97001 and 97002. Patients who saw another provider in addition to the physical therapist on the index date of low back pain diagnosis were assigned to the category of physical therapist not first.

The authors defined co-morbidities using the Elixhauser method, which is one of the most common comorbidity indices identifying 30 comorbidities using ICD-9-CM codes.[18] To create this index, the authors used the Comorbidity Software, Version 3.7 provided by the Healthcare Cost and Utilization Project (HCUP) downloadable from STATA/MP 14.0.[19] The authors used the ICD-9-CM codes from the secondary diagnosis across all claims on the initial date of low back pain diagnosis.

The authors defined distance between the patient and the provider using the billing zip code of both the patient and the provider. The authors used an algorithm developed by the National Bureau of Economic Research, which takes a straight line distance between zip codes within 100 miles of each other. The authors restricted zip code pairs to be between patients and providers living in any one of the six states. Cross border relationships between patient and provider may exist.

MRI and CPT codes were identified using CPT codes related to the back. ER visits were identified as presence of provider of service categories for emergency room across inpatient and outpatient claims files.

In the instrumental variables approach, the first step is to predict which patients only see a physical therapist on the initial date of diagnosis versus either 1) a physical therapist at a later date within a year of initial low back pain diagnosis, or 2) never saw a physical therapist within a year of initial low back pain diagnosis as a function of the distance between the provider and the patient controlling for patient demographics (i.e., gender and age), co-morbidities, and year of initial diagnosis. The authors use distance since this measure has been found to be a good predictor of selection to a particular provider. Using a two stage residual inclusion approach, the authors use the residuals from the first step as a regressor in the second step when estimating the probabilities of using health care services and costs. Costs are further adjusted using a two-part model to adjust for patients who may not have received any services within each setting.

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