Implementation of a primary spine practitioner model in academic health systems: a qualitative study of provider and administrator perceptions

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Conflicts

I have no conflicts of interest to report

Outline

01 Low Back Pain

02 Clinical Guidelines

03 Primary Spine Practitioner

04 Objective

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01

Low Back Pain

Low Back Pain

- Low back pain (LBP) has been the **leading cause** of years lived with disability (YLD) globally since 2010[1]
- YLD **increased 53%** from 1990 to 2015 (only partially due to aging population)[1]

$134.5B

Treatment Costs

Spine pain is the most costly disease category to treat at $134.5B in 2016 and counting[5]

$645B

Total Costs

Estimated $645 billion dollars in direct and indirect costs in the US[4]

02

Low Back Pain Guidelines

2017 American College of Physicians Guidelines[5]

Acute or subacute

0 - 6 weeks; 6 - 12 weeks

- Superficial heat
- Massage
- Acupuncture
- Spinal manipulation
- NSAIDs
- Muscle relaxants

Strong Recommendation

Chronic

12+ weeks

- Exercise
- Multidisciplinary rehab
- Acupuncture
- Mindfulness
- Tai chi / Yoga
- Progressive Relaxation
- Cognitive Behavioral Therapy
- Low-level Laser Therapy
- Spinal manipulation

Strong Recommendation

Chronic

Unresponsive to non-pharm therapy

- 1) NSAIDs
- 2) Tramadol or duloxetine
- Opioids*

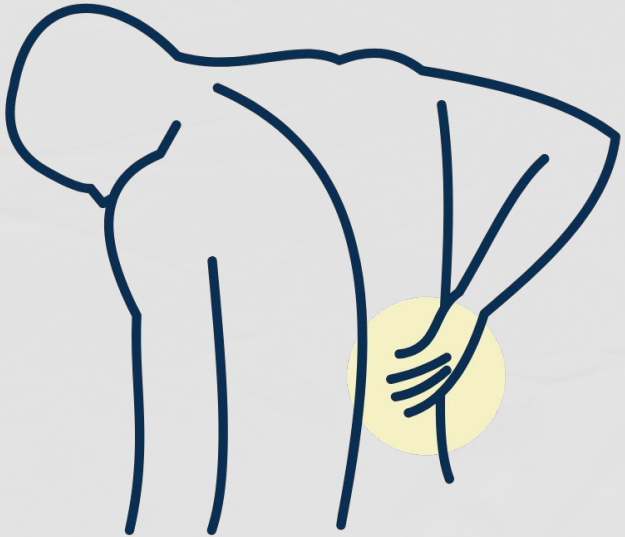
Weak Recommendation

Usual care for LBP (Family Medicine)

Imaging referrals	~25%[6]
Opioid prescription	~27%[6,7]
Education, reassurance or exercise	20%[6]
Advised to remain active and continue work	3%[6]
Referrals to physical therapy	15%[6]
Referrals to surgery	5%[6]
Guideline non-concordant care	50%[10]

Acute to Chronic

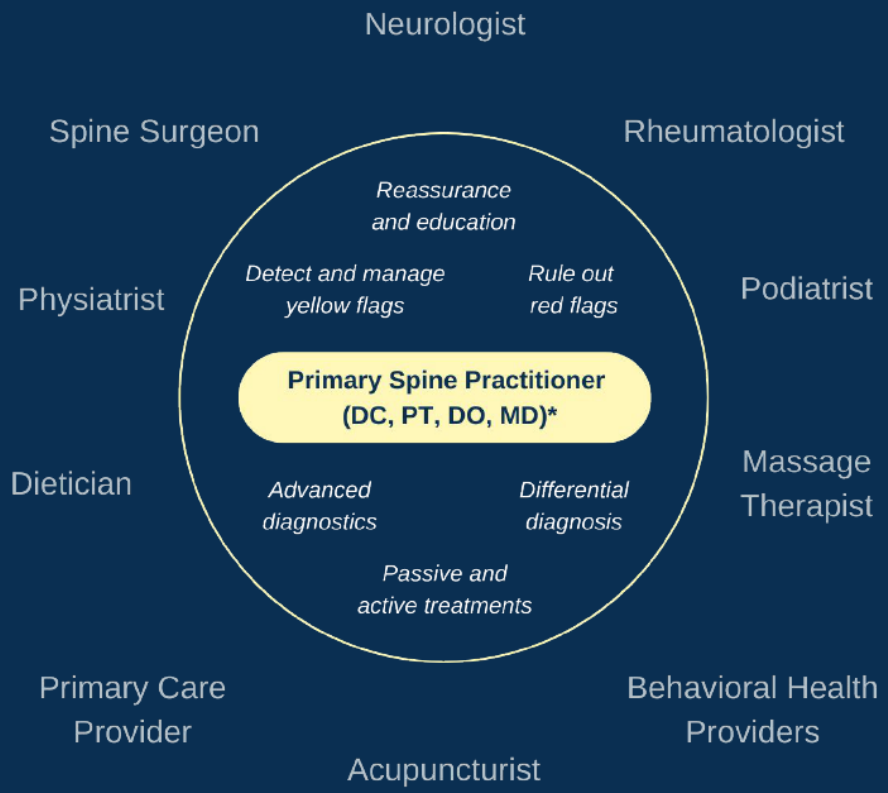
- Early exposure to guideline non-concordant care is **significantly and independently associated** with the transition from acute to chronic LBP[8]
- **1 in 3** primary care patients with **acute LBP will develop chronic LBP** in 6 months[8]



03

The Primary Spine Practitioner

Primary Spine Practitioner (PSP) model



Why the PSP model?

- **Improved outcomes and lower rates of**
  - Opioid prescriptions[13]
  - Spinal injections[13]
- **Cost-Effective and Guideline-Concordant Care:**
  - Reduced unnecessary escalation of care (e.g., fewer referrals to specialists, imaging studies) while adhering to clinical guidelines, reducing costs, and increasing patient satisfaction.[13,14]

04

Objective

Objective

- **IMPACt-LBP:** Hybrid Type 1 Effectiveness-implementation pragmatic clinical trial
- **Conducted within three academic healthcare systems:** Duke University, University of Iowa, and Dartmouth-Hitchcock Medical Center
- **Primary aim:** To explore the barriers and facilitators of the American College of Physicians guideline adoption by way of the PSP model

05

Methodology

Methodology

Interviews

Semi-structured interviews with 24 participants.

Participants

Primary care providers, physical therapists, a chiropractor, and administrators.

Coding Framework

Thematic coding with NVivo using the Consolidated Framework for Implementation Reporting (CFIR) as a guide

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Key Findings—Themes

Patient-Centered Care
Communication and Collaboration
Evidence-Based Care
Provider Competence
Access to Care

Patient-Centered Care

Perceived Facilitators	Perceived Barriers
Patients have more options	Patients may be hesitant to consult non-PCPs
Saves patient's time	

If I can be like, hey, I hear your back hurts, but this is the plan for that… now we need to talk about these 16 other things, I think it's good.

- Ulowa PCP

Ensuring Evidence Based Care

Perceived Facilitators	Perceived Barriers
The model itself is evidence-based	High standards of clinical rigor
	Adherence to evidence-based practices

So there's great evidence on osteopathic manipulation, there's great evidence on physical therapy, so I trust manipulation, and that's fine, and if someone asks me, I am fine with that… but we want to make sure that evidence-based care is happening.

- Duke Clinic Director

Communication and Collaboration

Perceived Facilitators	Perceived Barriers
Physical therapists are usually co-located and have compatible EHRs	Note sharing
	Secure instant messaging with private practices

It's harder to, as a private practice PT or chiropractor, get those kinds of referrals because you're not part of that system. Not only that, you can't see the records, so you can't see what imaging they've had or what other testing they've had, who else they have seen.

- Duke PT

Provider Competence

Perceived Facilitators	Perceived Barriers
Trust in PT's screening and referral skills	Misdiagnosis
	Screening for sinister diagnoses

The hesitation that I have is that if they see a PT first, are they evaluating in terms of aneurysms or some other type of process that might be causing the back pain?

- Duke PCP

Access to Care

Perceived Facilitators	Perceived Barriers
Early treatment	Insurance coverage
Relieve PCP burden	

We just don't have appointments available off and on for acute care. It'd be nice to have a patient evaluated and start getting treatment early.

- Duke Clinic Director

07

Conclusions

Conclusion

- PSP model holds promise for efficient, patient-focused spine care
- Improve communication and collaboration
- Address provider concerns regarding competence and misdiagnosis
- Cost and coverage challenges

Next steps: Evaluate post-implementation perceptions of the model

Acknowledgements

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Q&A

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Summary of the American College of Physicians Guideline on Noninvasive Treatments for Acute, Subacute, or Chronic Low Back Pain

Disease/Condition	Low back pain
Target Audience	All clinicians
Target Patient Population	Adults with acute, subacute, or chronic low back pain
Interventions Evaluated	Pharmacologic interventions: NSAIDs, nonopioid analgesics, opioid analgesics, tramadol and tapentadol, antidepressants, SMRs, benzodiazepines, corticosteroids, antiepileptic drugs Nonpharmacologic interventions: interdisciplinary or multicomponent rehabilitation; psychological therapies; exercise and related interventions, such as yoga or tai chi; complementary and alternative medicine therapies, including spinal manipulation, acupuncture, and massage; passive physical modalities, such as heat, cold, ultrasound, transcutaneous electrical nerve stimulation, electrical muscle stimulation, interferential therapy, short-wave diathermy, traction, LLLT, lumbar supports/braces
Outcomes Evaluated	Pain, function, health-related quality of life, work disability/return to work, global improvement, number of back pain episodes or time between episodes, patient satisfaction, adverse effects

Benefits	Acute low back pain Pharmacologic NSAIDs: improved pain and function (small effect) SMRs: improved pain (small effect) Nonpharmacologic Heat wrap: improved pain and function (moderate effect) Massage: improved pain and function (at 1 but not 5 wk) (small to moderate effect) Acupuncture: improved pain (small effect) Spinal manipulation: improved function (small effect) Chronic low back pain Pharmacologic NSAIDs: improved pain (small to moderate effect) and function (no to small effect) Opioids: improved pain and function (small effect) Tramadol: improved pain (moderate effect) and function (small effect) Buprenorphine (patch or sublingual): improved pain (small effect) Duloxetine: improved pain and function (small effect) Nonpharmacologic Exercise: improved pain and function (small effect) Motor control exercise: improved pain (moderate effect) and function (small effect) Tai chi: improved pain (moderate effect) and function (small effect) Mindfulness-based stress reduction: improved pain and function (small effect) Yoga: improved pain and function (small to moderate effect, depending on comparator) Progressive relaxation: improved pain and function (moderate effect) Multidisciplinary rehabilitation: improved pain (moderate effect) and function (no to small effect) Acupuncture: improved pain (moderate effect) and function (no to moderate effect, depending on comparator) LLLT: improved pain and function (small effect) Electromyography biofeedback: improved pain (moderate effect) Operant therapy: improved pain (small effect) Cognitive behavioral therapy: improved pain (moderate effect) Spinal manipulation: improved pain (small effect) Radicular low back pain Exercise: improved pain or function (small effect)
Harms	Generally poorly reported Pharmacologic NSAIDs: increased adverse effects compared with placebo and acetaminophen (COX-2–selective NSAIDs decreased risk for adverse effects compared with traditional NSAIDs) Opioids: nausea, dizziness, constipation, vomiting, somnolence, and dry mouth SMRs: increased risk for any adverse event and central nervous system adverse events (mostly sedation) Benzodiazepines: somnolence, fatigue, lightheadedness Antidepressants: increased risk for any adverse event Nonpharmacologic Poorly reported, but no increase in serious adverse effects

Table 2 Recommendations of clinical practice guidelines for treatment of low back pain

Recommendations for treatment	AFRI (2015)	AUS (2016)	BRA (2013)	BEL (2017)	CAN (2015)	DEN (2017)	FIN (2011)	GER (2017)	MAL (2012)	MEX (2011)	NETH (2010)	PHI (2011)	SPA (2012)	UK (2016)	USA (2017)	% of agreement
Avoiding bed rest	X	X	-		X	X	X	X	X	X	X	X	X	-	-	11 out of 12 (92%)
Acute LBP	X	X	-		X	X			X	X	X			-	-	7 out of 11 (64%)
Any duration of symptoms			-				X	X				X	X			4 out of 11 (36%)
Using patient education - advice to maintain normal activities		X	-	X	X	X	X	X	X		X	X	X	X	X	12 out of 14 (68%)
Acute LBP		X	-		X	X		X	X			X			X	7 out of 12 (58%)
Any symptom duration			-	X			X				X		X	X	-	5 out of 12 (42%)
Using patient education - reassurance		X	-	X	X	X	X		X		X		X	X	X	10 out of 14 (71%)
Prescription of NSAIDs for any symptom duration	X	X	X	X	X	X	X	X		X	X	X	X	X	X	14 out of 15 (93%)
Insufficient data regarding NSAIDs for chronic LBP									X							1 out of 15 (7%)
Prescription of paracetamol	-		X		X		X		X	X	X	X	X			8 out of 14 (57%)
Acute LBP	-				X		X				X	X				4 out of 8 (50%)
Chronic LBP	-		X		X							X				3 out of 8 (37%)
Any symptom duration	-								X	X			X			3 out of 8 (37%)
Against the prescription of paracetamol	-			X		X		X						X	X	5 out of 14 (36%)
Using opioids	X		X	X	X		X	X	X	X	X	X	X	X	X	13 out of 15 (87%)
Acute LBP	X			X	X		X	X		X		X		X		8 out of 13 (61%)
Chronic LBP			X					X			X	X			X	5 out of 13 (38%)
Any duration of symptoms									X				X			2 out of 13 (23%)
Against the prescription of opioids		X				X								X		3 out of 15 (23%)
Acute LBP		X				X										2 out of 3 (66%)
Chronic LBP														X		1 out of 3 (33%)

Table 2 (continued)

Using antidepressants	-	-	X		X	-	X	X	-	X	-	X	X		X	8 out of 10 (80%)
Chronic LBP	-	-	X		X	-	X		-	X	-	X			X	6 out of 8 (75%)
Against the prescription of antidepressants	-	-		X		-			-		-			X		2 out of 10 (20%)
Using muscle relaxants		-			X	-	X		-	X		X	X	-	X	6 out of 11 (54%)
Acute LBP		-				-	X		-			X		-	X	3 out of 6 (50%)
Chronic LBP		-			X	-			-			X		-		2 out of 6 (33%)
Any duration of symptoms		-				-			-	X			X	-		2 out of 6 (33%)
Against the prescription of muscle relaxants	X	-	X	X		-		X	-		X			-		5 out of 11 (45%)
Using herbal medicines	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	1 out of 2 (50%)
Against the prescription of herbal medicines	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	1 out of 2 (50%)
Referral to specialist to care of suspicion of specific pathologies or radiculopathy			-	X	X	X	X	X	X			X	X	X	-	9 out of 13 (69%)
Referral to specialist if there is no improvement after four weeks to two years	X	X	-		X	X		X			X		X		-	7 out of 13 (54%)
Against injections	-	X	-		X	-	-	X		-	X		-	X	-	5 out of 8 (62%)
Using surgery	-		-			-	-		X	-		X	-		-	2 out of 8 (25%)
Against surgery	-	X	-		X	-	-	X		-			-	X	-	4 out of 8 (50%)
Using radiofrequency denervation for chronic LBP.	-		-	X		-	-			-		X	-	X	-	3 out of 8 (37%)
Against radiofrequency denervation for nonspecific LBP.	-	X	-		X	-	-	X		-	X		-		-	4 out of 8 (50%)
Using multidisciplinary rehabilitation	-	X	-	X	X	-	X	X	X	X	X	-	X	X	X	11 out of 11 (100%)
Chronic LBP	-	X	-	X	X	-	X	X	X	X		-		X	X	9 out of 11 (81%)
Any duration of symptoms	-		-			-						-	X			1 out of 11 (9%)
Patients not recovered after monodisciplinary approach	-		-			-					X	-				1 out of 11 (9%)

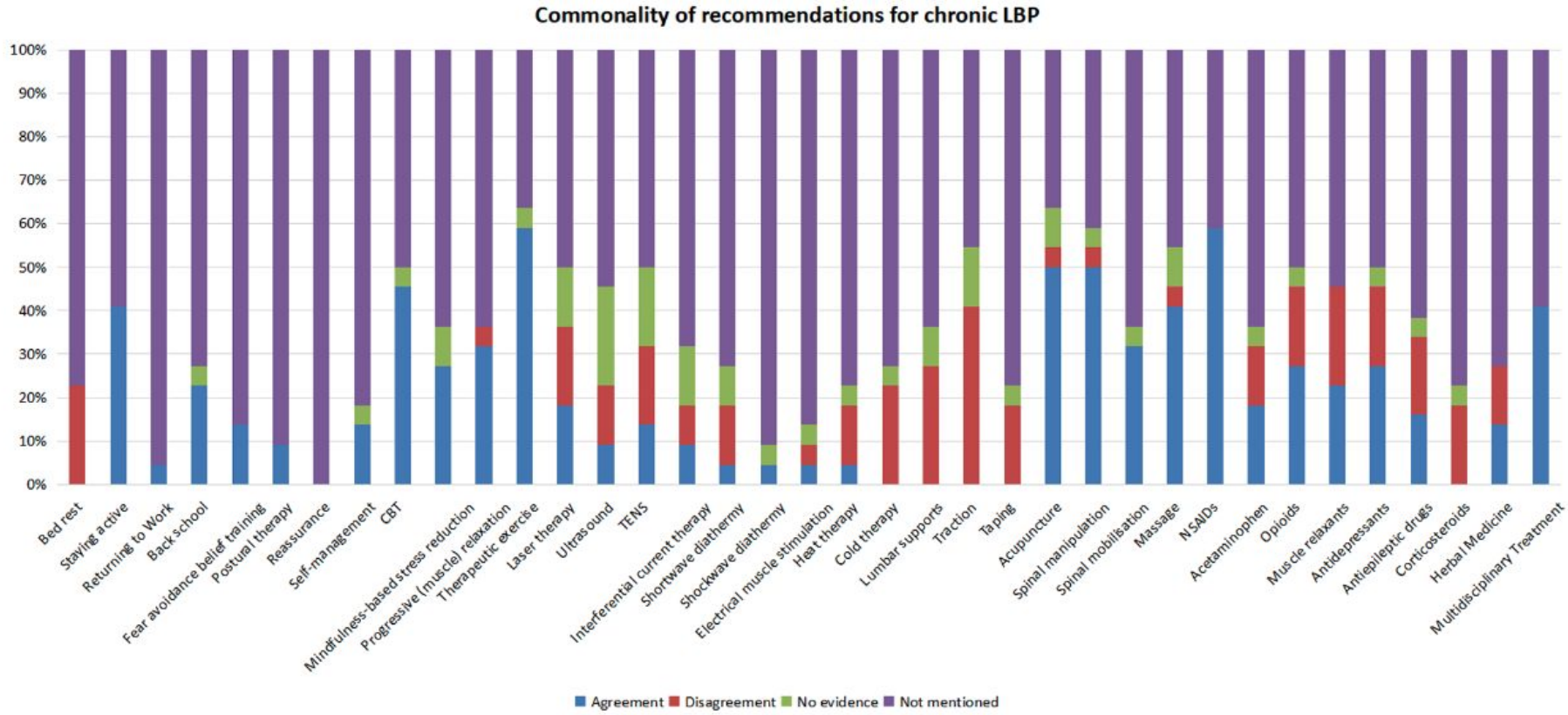
Table 2 (continued)

Using psychosocial therapy	-	X	-	X	X	-	X	X	X	X	X	-	X	X	X	11 out of 11 (100%)
Chronic LBP	-		-	X	X	-	X	X	X		X	-	X	X	X	9 out of 11 (82%)
Acute LBP	-	X	-			-						-				1 out of 11 (9%)
Any duration of symptoms	-		-			-				X		-				1 out of 11 (9%)
Using exercise therapy	X		X	X	X	X	X	X	X	X	X	X	X	X	X	14 out of 15 (93%)
Chronic LBP			X		X		X	X	X	X	X	X	X		X	10 out of 14 (71%)
Acute LBP	X					X					X					3 out of 14 (21%)
Any duration of symptoms				X										X		2 out of 14 (14%)
Using spinal manipulation		-	-	X	X	X		X	X	-	X	X	-	X	X	9 out of 11 (81%)
Acute LBP		-	-		X	X		X		-	X	X	-		X	6 out of 9 (66%)
Chronic LBP								X				X			X	3 out of 9 (33%)
Any duration of symptoms				X					X					X		3 out of 9 (33%)
Against the use of spinal manipulation	X	-	-							-	X		-			2 out of 11 (19%)
Chronic LBP											X					1 out of 2 (50%)
Acute LBP	X															1 out of 2 (50%)
Using acupuncture	X	X	-	-		X	-		-	-	-		-		X	4 out 8 (50%)
Against the use of acupuncture			-	-	X		-	X	-	-	-	X	-	X		4 out 8 (50%)

"-" = The guideline did not provide any recommendation regarding the approach.

"X" = The guideline endorsed the recommendation regarding the approach.

" " = The guideline did not endorse the recommendation regarding the approach.


Commonality of recommendations for chronic LBP
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Bed rest
Staying active
Returning to Work
Back school
Fear avoidance belief training
Postural therapy
Reassurance
Self-management
CBT
Mindfulness-based stress reduction
Progressive (muscle) relaxation
Therapeutic exercise
Laser therapy
Ultrasound
TENS
Interferential current therapy
Shortwave diathermy
Shockwave diathermy
Electrical muscle stimulation
Heat therapy
Cold therapy
Lumbar supports
Traction
Taping
Acupuncture
Spinal manipulation
Spinal mobilisation
Massage
NSAIDs
Acetaminophen
Opioids
Muscle relaxants
Antidepressants
Antiepileptic drugs
Corticosteroids
Herbal Medicine
Multidisciplinary Treatment
Agreement
Disagreement
No evidence
Not mentioned