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ORIGINAL RESEARCH

Pain Management

Physical therapy in the Emergency Department: A prospective cohort study from an Alternatives to Opioids program

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Abstract

Objective: Musculoskeletal pain complaints are common in the emergency department (ED). The objective of this study was to determine the impact of physical therapy (PT) in the ED on pain and ED return.

Methods: A prospective cohort study was performed with those presenting to the ED or Urgent Care at a single academic center for musculoskeletal pain between November 2020 and December 2022. All patients were referred to outpatient PT. During business hours, PT was available to begin treatment in the ED. Long-term follow-up was performed using the electronic health records. Statistical analyses included descriptive and non-parametric pairwise comparisons, Fisher's exact test, and multiple logistic regression.

Results: A total of 974 patients were included in the study with 553 completing optional surveys. Back pain was most common. Pain was reduced at ED discharge for all patients, but pain was significantly improved if patients saw PT in the ED. Patients in the ED were less likely to keep their outpatient PT appointments than others, but importantly, patients who saw PT in the ED were less likely to return to the ED for the same complaint up to 1 year later. Those who kept PT appointments were likely to establish or maintain healthcare outside emergency services later.

Conclusions: Initiating PT in this ED reduces pain at ED discharge. However, patients who utilized PT were more likely to later utilize health care resources outside of emergency services. Those who saw PT in this ED were less likely to return to the ED for the same complaint up to 1 year later.

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1 | INTRODUCTION

1.1 | Background

Musculoskeletal (MSK) complaints account for almost 10% of all Emergency Department (ED) visits each year in the United States, with approximately 9 million patients being treated and discharged.[1] Previous studies examining patient's reasons for seeking ED care for MSK complaints found that three out of four patients sought pain relief, and less than half of that group desired diagnosis or radiographic evaluation.[2]

An increase in opioid prescribing was seen starting in 2006, which peaked in 2012 at a rate of 81.3 prescriptions per 100 persons.[3] In 2011, the Centers for Disease Control declared deaths from prescription opioids an "epidemic."[4] Mirroring this rise in opioid prescribing often for chronic pain conditions was a rise in overdoses.

Emergency care is designed to provide specialized, rapid treatment for acute conditions and injuries. Patients in the ED will receive care for their immediate needs, including pain, but this care is typically not designed to manage chronic conditions. According to Hertling and Kessler, physical therapy (PT) is known to address both acute and chronic pain.[5] Additional studies have shown lower pain levels, fewer recommended imaging tests and prescription medications at ED discharge, and fewer ED return visits when PT is utilized in the ED.[6] Early PT intervention was shown to reduce long-term opioid use.[7]

1.2 | Importance

Due to often perceived limited options for pain relief in the ED, it is essential that physicians gain new non-pharmacological treatment options to avoid dependence on opioid therapies. Despite previous research on this topic, it is unknown whether PT in the ED can lead to fewer return visits. Additionally, the effects of early access to outpatient PT after being seen by a physical therapist in the ED have yet to be studied and previous studies focused on only one area of intervention.

1.3 | Goals of this investigation

The goal of the Alternatives to Opioids (ALTO) program was to provide early access to PT in the ED to patients presenting with non-traumatic MSK pain, providing an additional treatment option for pain management to emergency medicine physicians. The primary objective of this program was to assess efficacy of PT for pain reduction in the ED while simultaneously reducing the number of opioids prescribed to patients in the emergency setting through effective treatment of pain. The secondary objectives were to compare pain after treatment, adherence to outpatient PT, and return visits for the same complaint. We anticipated other downstream effects due to this program such as the establishment of appropriate healthcare utilization. This study also looked to address research gaps and find additional benefits of PT interventions in the ED beyond immediate patient-centered outcomes, such as ED discharge pain scores.

The Bottom Line

Increasingly clinicians and patients are seeking non-opioid alternatives for pain treatment in the emergency department (ED). In a prospective convenience cohort study of 974 patients presenting to the ED with musculoskeletal pain, 528 had an evaluation and treatment by physical therapy (PT). The PT group had much less pain compared to standard treatment, and were more likely to follow up with outpatient PT rather than return to the ED.

2 | METHODS

2.1 | Study design and setting

This program was designed as a prospective cohort study open to eligible patients presenting to the ED (annual volume > 90,000) or Urgent Care (UC; annual volume > 50,000) at a single large academic tertiary center for non-traumatic acute or exacerbations of MSK pain. We included eligible patients from November 2020 to December 2022. The study received local institutional review board acknowledgment as a quality improvement program.

2.2 | Selection of participants

Adult patients presenting to the ED or UC with a complaint of acute or chronic MSK pain who did not need emergent surgical intervention were invited to participate in a program designed to treat their pain with ALTO medications. During the health care visit, clinicians would treat patients with standard of care practice for their pain. After standard evaluation, ED clinicians who determined the source of pain to be MSK-related and deemed potential PT appropriate would place an electronic order for a referral for PT to all eligible patients. All others were excluded. The ALTO program staff would approach these patients during their health care visit to explain and invite them to participate. Those who consented answered longitudinal surveys about their pain and the course of their treatment throughout the program. Long-term follow-up to determine healthcare trends (further ED visits, outpatient follow-up, etc.) was performed on all eligible subjects using review of our local electronic medical records unless the eligible subject requested to be removed from the follow-up. The final sample size was based on convenience of patients presenting to the ED.

2.3 | Interventions/exposures

All eligible patients were given a referral to PT order regardless of their willingness to participate in the ALTO program itself. During most business hours, PT trained in managing MSK conditions was provided in the ED in addition to being offered a follow-up appointment in an

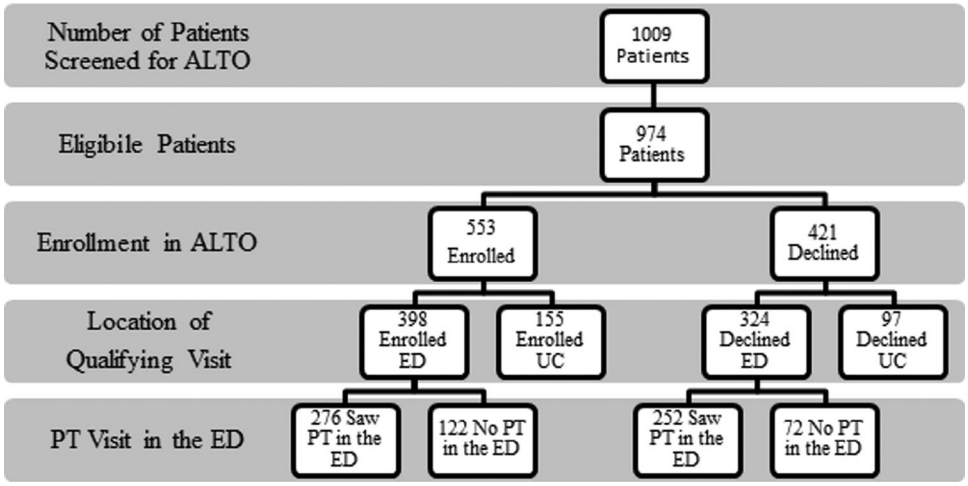

FIGURE 1 Flow chart of patients screened for Alternatives to Opioids (ALTO) participation. ED, emergency department; PT, physical therapy.

outpatient setting with out-of-pocket costs covered by the program as needed. Patients were allowed to refuse PT evaluation if it was their preference. The reason for their refusal was not tracked. In total, 974 patients were eligible for this study out of 1007 patients screened.

2.4 | Outcomes

The primary outcome of this study was reduction in pain at ED discharge. The secondary outcomes were adherence to outpatient PT visits and return ED visits for the same complaint.

2.5 | Measurement/data analyses

Pain scales (visual analog scale; VAS) were collected and self-reported. This study contained a convenient sample and included all eligible adult patients (≥18 years old) with non-traumatic acute or exacerbations of chronic MSK pain. Patient return rates were collected using the institutional electronic medical records. All return rates were collected monthly, beginning at 6 months, and ending at 12 months from the patient's index visit. Lost-to-follow-up rate was not calculated.

Descriptive statistics were used to characterize the subjects. Characteristics such as gender and race were self-reported. Pain scales were analyzed using the Wilcoxon signed rank test for paired comparison. Frequencies of the presence or absence of minimal clinically significant pain change were calculated by considering if the change in pain exceeded 12 mm on the VAS.[8] Contingency analyses on the frequency of minimal clinically significant pain, ED return, and healthcare utilization were done using Fisher's exact test. Odds ratios for minimal clinically significant pain were calculated using Baptista–Pike analysis. Upper and lower limits of 95% confidence intervals for ED return and healthcare utilization were calculated among the three groups using the Wilson/Brown method. Multiple logistic regression with multiple variable analysis models was performed. Univariate binary dependent variables of ED PT use. Variables measured were theorized by the study team and included return for same ED complaint, prior ED visits, pre-visit healthcare utilization, and post-visit healthcare utilization. Multicollinearity was assessed for variables strongly correlated with others. The Hosmer–Lemeshow test was used to assess the goodness of fit for logistic regression model. Statistical analyses were performed using GraphPad Prism (v10.2). Statistical significance was defined as $p < 0.05$. Some program enrollees were lost to follow-up during the follow-up phase of this program despite multiple attempts to contact them through their preferred means.

3 | RESULTS

3.1 | Characterization of study subjects

Our cohort contained 974 eligible patients presenting for MSK pain, of which, 553 consented to completing follow-up surveys in the full program (56.8%). The diagram of patients can be seen in Figure 1 and study demographics can be seen in Table 1. The spread in the population demographics, including gender, race, and insurance status, was satisfactory given the population demographics in the hospital catchment area. The location of pain complaints included MSK pain throughout the body (Figure 2). Lower back pain was the most frequent cause for the visit, encompassing 14% of total pain complaint locations.

3.2 | Main results

The primary objective of this grant program was to reduce the pain of patients with MSK pain at discharge without the use of opioid medications within the ED and at time of discharge prescribing. All eligible patients were provided a referral to outpatient PT; additionally, a physical therapist was available in the ED for an initial evaluation and treatment as a part of their ED treatment visit during daytime hours. A total of 528 patients had an initial evaluation and treatment visit with a physical therapist during their ED visit (54.2%).

TABLE 1 Study population demographic characteristics.

Measure	
Age (years), mean (standard deviation)	43.7 (±15.6)
Gender, *N* (%)[a]	
Male	213 (39.4)
Female	315 (60.4)
Other/did not respond[b]	25 (4.5)
Race or ethnicity (multi-selection), *N* (%)[a]	
Black or African American	112 (20.7)
White	394 (73.0)
Asian	5 (0.9)
American Indian or Alaska Native	1 (0.2)
Native Hawaiian or other Pacific Islander	1 (0.2)
Some other race[c]	22 (4.1)
Hispanic	22 (4.2)
Insurance type (multi-selection), *N* (%)[a]	
Private	208 (38.8)
Tri-care	6 (1.1)
Medicare	81 (15.1)
Medicaid	113 (21.1)
Self-pay	128 (23.9)

[a]These demographics were collected voluntarily from consenting participants only.
[b]Gender identities with less than five individuals or those who preferred not to disclose were grouped.
[c]Some other race was self-reported by participants.

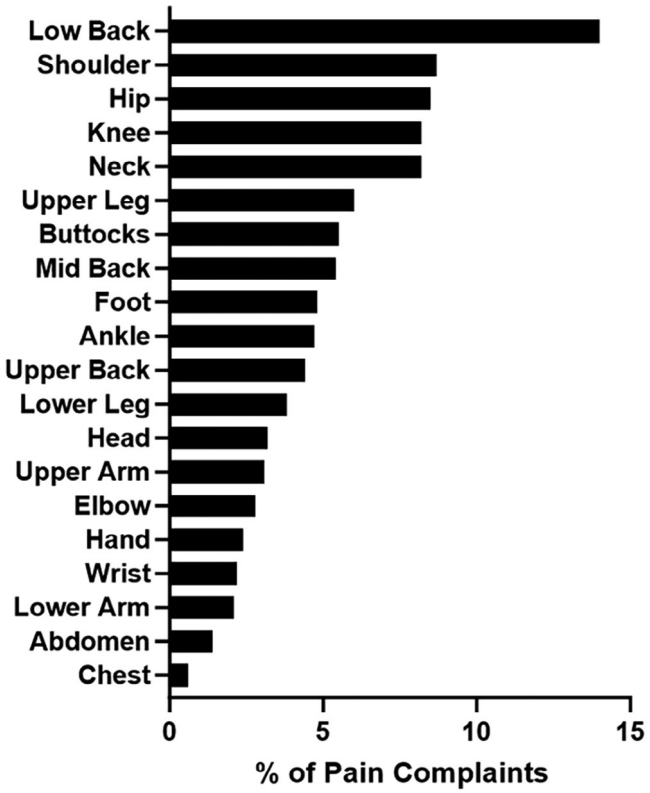

FIGURE 2 Distribution of pain locations. Back pain was the most common location of pain reported.

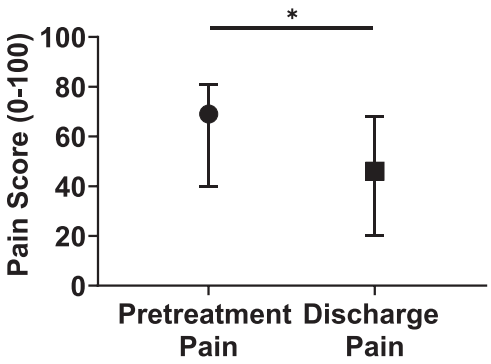

FIGURE 3 Comparison of pain scores in all surveyed patients. Median visual analog scale millimeters indicated by shape with interquartile range shown. Asterisk indicates significant difference between groups.

Self-reported VAS pain scores at discharge showed a reduction from the median of 69 to 46 mm (Figure 3, $p < 0.001$). Furthermore, those who were evaluated and treated by PT during their ED visit more frequently had the presence of minimal clinically significant change in pain scores (odds ratio: 3.103, confidence interval: 1.895–5.037; Table 2). The median pain improvement for patients after PT in the ED was 20 mm (interquartile range [IQR]: 3–39 mm) compared to 4 mm improvement in patients who were not treated by PT in the ED (IQR: −1 to 15 mm).

Evaluation and treatment by PT in the ED were strongly associated with decreased odds of keeping an outpatient PT appointment (Table 3; $p < 0.001$). Strikingly, although, evaluation and treatment by PT in the ED led to a threefold reduction in returning to the ED for the same complaint up to 1 year later highlighting the success of the visit (Table 3; $p < 0.001$).

Although PT in the ED was impactful in the reduction of ED returns for the same complaint, all patients who received some PT either in the ED and/or outpatient PT were less likely to return to the ED for the same complaint. Receiving PT in the outpatient reduced ED return with the same complaint about twofold, whereas PT in the ED leads to a nearly fourfold reduction in ED return for the same complaint in those who received no PT at any time (Table 4; $p < 0.001$). Furthermore, healthcare utilization patterns among patients who received PT in the ED showed a 10% increase in establishing or maintaining healthcare outside of emergency services. Patients who received PT care in the outpatient setting showed a 20% increase in those who established or maintained healthcare outside emergency services (Table 4; $p < 0.001$).

4 | LIMITATIONS

Although significant findings were found, we cannot exclude limitations of this study. This study was limited to the data and patients

TABLE 2 Physical therapy evaluation and treatment in the emergency department (ED) increased the frequency of minimal clinically significant pain change.

Outcome	Row, % (*n*)	Contingency *p*-value
Presence of minimal clinically significant pain change		
Received physical therapy in the ED	56.3% (138/245)	<0.001
Did not receive physical therapy treatment in the ED	29.4% (32/109)	

TABLE 3 Impact of emergency department (ED) physical therapy (PT) on health care utilization.

Outcome (referent)	PT in the ED, OR (95% CI)	No PT in the ED, OR (95% CI)
ED return with the same complaint (yes)	0.327 (0.193–0.545)	3.050 (1.84–5.17)
Prior ED visits for any complaint (number)	1.110 (0.972–1.290)	0.902 (0.777–1.030)
Utilized other health care prior to this visit for any reason (yes)	0.854 (0.498–1.460)	1.170 (0.685–2.010)
Utilized other health care after this visit for any reason (yes)	1.080 (0.586–2.000)	0.924 (0.500–1.710)
Utilized outpatient PT (yes)	0.287 (0.181–0.450)	3.480 (2.220–5.510)
Hosmer–Lemeshow statistic and *p*-value	8.95, 0.347	10.10, 0.2550

Abbreviations: CI, confidence interval; OR, odds ratio.

TABLE 4 Impact of physical therapy on emergency department (ED) returns and follow-up health care utilization.

Outcome	Row, % (*n*)	95% CI of positive outcome (UL, LL)
ED return for same complaint		
Received physical therapy in the ED	9.1% (44/437)	(12.0, 6.9)
Received physical therapy only in the outpatient setting	16.9% (85/419)	(20.4, 13.8)
Did not receive physical therapy treatment	32.7% (36/74)	(41.9, 24.7)
Utilize healthcare services after visit		
Received physical therapy in the ED	69.9% (337/145)	(73.8, 65.7)
Received physical therapy only in the outpatient setting	83.0% (395/81)	(86.1, 79.3)
Did not receive physical therapy treatment	59.1% (65/45)	(67.8, 49.7)

Abbreviations: CI, confidence interval; LL, lower limit of 95% confidence interval; UL, upper limit of 95% confidence interval.

of a single healthcare system ED and UC. As a prospective cohort study based on a convenient sample, limited information is sometimes available in the electronic health records or unavailable due to lost to follow-up. All eligible patients were provided with an electronic PT referral; however, the physical therapist and program study staff were not available 24 h a day potentially leading to some selection bias. Furthermore, those patients who declined PT likely have various reasons for doing so, including prior unsatisfactory results or a misunderstanding of PT potentially leading to selection bias as well. While we believe that these limitations did not impact the study to a significant degree, we suggest that future studies include a more rigorous approach than this observational study, such as a randomized controlled trial or multiple hospital systems to attempt to mitigate these limitations and increase the generalizability even further. The survey data were self-reported and subject to bias and in some areas led to a lack of demographic data. Some patients lost to follow-up may have decided to seek care elsewhere, perhaps in part by the experience of care in our ED, including PT.

5 | DISCUSSION

A goal of this study was to address the knowledge gaps for PT in the ED in an attempt to establish potential benefits of PT in the ED beyond 30-day return rates. This prospective cohort study analyzed patients who were eligible for a funded ALTO program, which utilizes PT in the ED as an alternative treatment to opioids and tracks outcomes longitudinally.

The primary goal of the ALTO program, in general, is to reduce the number of opioids originating from the ED. Nationally, opioid prescribing decreased from 12.2% in 2017–2018 to 8.1% in 2019–2020.[9] During the timeframe of this study, our institution decreased opioid prescribing from 14.55% to 0.00% for enrollees of our ALTO program. The findings of this study showed that the ALTO program was successful in not only reducing the number of ALTO participants receiving opioids but may have contributed to the culture shift reducing the number of opioids originating from our institutional ED as a whole.

The program participants for this study were diverse for our institutional patient catchment area. These demographics included age,

sex, race, ethnicity, and insurance payer source. Perhaps unsurprisingly, lower back pain constituted the highest prevalence of pain location in our program participants. Nearly twice as many lower back pain patients participated in the ALTO program than any other pain location. Low back pain has been reported to be a very common location for pain in other EDs, with an estimated 4.4% of all ED visits attributed to lower back pain.[10] Other common sources of pain in our cohort included shoulder, hip, and knee pain.

Globally, participants enrolled in the ALTO program did have a reduction in self-reported pain score of nearly 25% at discharge. However, even more striking is the self-reported improvement in pain of participants who were treated by PT in the ED. Pain improvement was fivefold greater in this group. These findings corroborate others investigating the effects of early PT intervention (specifically targeting lower back pain) on pain reduction.[11]

We also reported other benefits of PT in the ED. The PTs providing services in the program used an outpatient approach to MSK pain conditions rather than the more commonly reported inpatient PT approach focused on movement. This may have aided in our overall program success.

These findings suggest that evaluation by PT in the ED and followed by outpatient PT led to an increase in trust in the health care system, which expanded to other aspects of their health beyond MSK pain. An increase in trust has been seen with continuity of care in outpatient PT.[12] Increased trust in healthcare is likely due to the expanded time patients have with health care staff. The physical therapist can spend additional time listening to the patient and providing unique therapy that can be missed in the brief encounter the patient has with the physician. While previous studies reported reduced imaging tests, decreased prescription drug orders, and increased patient satisfaction, we report for the first time to our knowledge that PT in the ED with outpatient follow-up can lead to more efficient healthcare utilization beyond acute care.[6,13]

Patients utilizing acute care services for their MSK pain often face challenges keeping outpatient appointments for various reasons including but not limited to difficulty arranging transportation, child or elder care, work absences, lack of internet/device for telehealth options, and previous experience utilizing emergency services.[14] In our study, many patients who were evaluated and treated by PT in the ED were unable to keep their outpatient PT appointments, despite offering many outpatient sites across the region. This lack of follow-up underscores the importance for services such as PT to be present in the emergency setting. Our regular institutional patient catchment area comprises approximately 25 mostly rural counties surrounding its suburban location. We believe that those who saw PT in the ED and received pain science education with instructions for exercises may have been satisfied with the status of their care, considering potentially large travel distances to outpatient PT appointments. Additionally, with the self-reports of approximately 21% of ALTO participants receiving Medicaid and 24% uninsured, it is possible that monetary factors could have played a role, such as travel expenses or missed work, even though PT visit was fully covered by the ALTO program. Moreover, many patients who were evaluated and treated by PT in the ED may have been simply satisfied with their exercise and pain control plan received in the ED, their reduced pain at discharge, and felt that further outpatient PT visits were unnecessary. Still, the visit with PT in the ED did have an influence on return rates to the ED.

Gagnon et al. have previously reported that PT in the ED reduced pain and ED returns up to 3 months after the visit; however, the causes for the ED returns were not investigated.[6] We aimed to investigate ED returns based on related complaints. Thus, our study's most impactful finding is that those who had evaluation and treatment by a physical therapist in the ED were less likely to return to either the ED or UC for the same complaint up to 1 year after their visit. This prominent finding, the first report to our knowledge, suggests that our ED PT providers were able to significantly reduce specific complaints to the point where patients did not seek emergency care for the same pain. Fewer return rates for the same complaint opens additional resources for EDs to utilize for other patients.

In summary, the results of this study suggest that PT evaluation and treatment in the ED provide many benefits. In the short term, patients receiving PT in the ED reported a greater reduction in pain at ED discharge than standard ED care. Beyond short-term outcomes, patients who utilized PT were more likely to establish appropriate care with health care resources outside of emergency services up to 1 year after enrollment.. Finally, those who saw PT in the ED were significantly less likely to return to the ED for the same complaint up to 1 year later. PT within the ED provides a valuable tool to reduce MSK complaints and improve patient outcomes.

AUTHOR CONTRIBUTIONS

Julie Stilley, Jonathan Heidt, and Teresa Graff conceived the study, designed the trial, and obtained research funding. Jonathan Heidt, Julie Stilley, Jessica Young, and Hannah Nichols supervised the conduct of the trial and data collection. Jessica Young, Hannah Nichols, Elizabeth Kendrick, Madelyn Bogler, Laura Korte, Marc Olive, and Julie Stilley undertook recruitment of patients and managed the data, including quality control. Julie Stilley provided statistical advice on study design and analyzed the data. Madelyn Bogler drafted the manuscript, and all authors contributed substantially to its revision. Julie Stilley takes responsibility for the paper as a whole.

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CONFLICT OF INTEREST STATEMENT

The authors declared they have no conflicts of interest.

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REFERENCES

1. Weiss AJ, Jian H. Most Frequent Reasons for Emergency Department Visits, 2018. *HCUP Statistical Brief*. 2021;286.
2. Gaieski DF, Mehta S, Hollander JE, Shofer F, Bernstein J. Low-severity musculoskeletal complaints evaluated in the emergency department. *Clin Orthop Relat Res*. 2008;466:1987-1995.
3. Centers for Disease Control and Prevention. "United States Dispensing Rate Maps". October 11, 2021. Accessed May 10, 2022. https://www.cdc.gov/drugoverdose/rxrate-maps/index.html
4. Centers for Disease Control and Prevention. "Press Release: Prescription painkiller overdoses at epidemic levels." November 2, 2011. Accessed May 10, 2022. https://www.cdc.gov/media/releases/2011/p1101_flu_pain_killer_overdose.html
5. Hertling D, Kessler RM. *Management of Common Musculoskeletal Disorders: Physical Therapy Principles and Methods*. Lippincott Williams & Wilkins; 2006.
6. Gagnon R, Perreault K, Berthelot S, et al. Direct-access physiotherapy to help manage patients with musculoskeletal disorders in an emergency department: results of a randomized controlled trial. *Acad Emerg Med*. 2021;28(8):848-858.
7. Magel J, Kim J, Fritz JM, Freburger JK. Time between an emergency department visit and initiation of physical therapist intervention: health care utilization and costs. *Phys Ther*. 2020;100(10):1782-1792.
8. Kelly AM. The minimum clinically significant difference in visual analogue scale pain score does not differ with severity of pain. *Emerg Med J*. 2001;18(3):205-207. doi:10.1136/emj.18.3.205
9. Santo L, Schappert SM. Opioids prescribed to adults at discharge from emergency departments: United States, 2017–2020. *NCHS Data Brief*. 2023(461):1-8.
10. Edwards J, Hayden J, Asbridge M, Gregoire B, Magee K. Prevalence of low back pain in emergency settings: a systematic review and meta-analysis. *BMC Musculoskelet Disord*. 2017;18(1):143. doi:10.1186/s12891-017-1511-7
11. Arnold E, La Barrie J, DaSilva L, Patti M, Goode A, Clewley D. The effect of timing of physical therapy for acute low back pain on health services utilization: a systematic review. *Arch Phys Med Rehabil*. 2019;100(7):1324-1338. doi:10.1016/j.apmr.2018.11.025
12. Beattie P, Dowda M, Turner C, Michener L, Nelson R. Longitudinal continuity of care is associated with high patient satisfaction with physical therapy. *Phys Ther*. 2005;85(10):1046-1052.
13. Pugh A, Roper K, Magel J, et al. Dedicated emergency department physical therapy is associated with reduced imaging, opioid administration, and length of stay: a prospective observational study. *PLoS One*. 2020;15(4):e0231476.
14. Howard MS, Davis BA, Anderson C, Cherry D, Koller P, Shelton D. Patients' perspective on choosing the emergency department for nonurgent medical care: a qualitative study exploring one reason for overcrowding. *J Emerg Nurs*. 2005;31(5):429-435. doi:10.1016/j.jen.2005.06.023

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